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JAN/FEB 2000 VOL.3 NO. 1

HANDHELD PC

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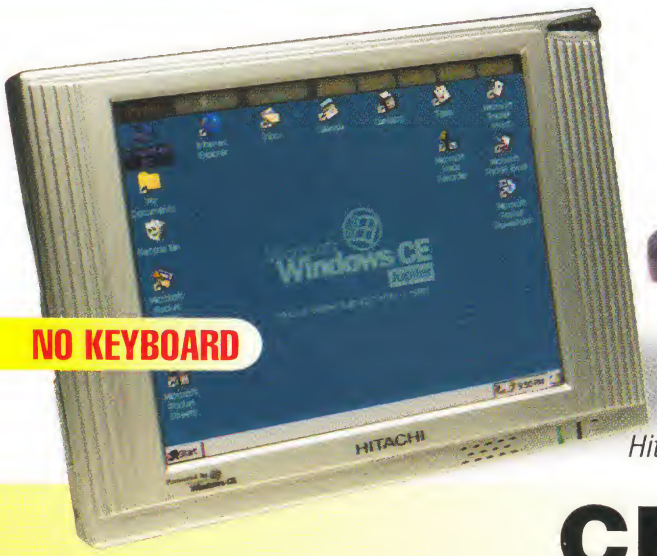
HALF-SCREEN FULL KEYBOARD

NEC MobilePro 780



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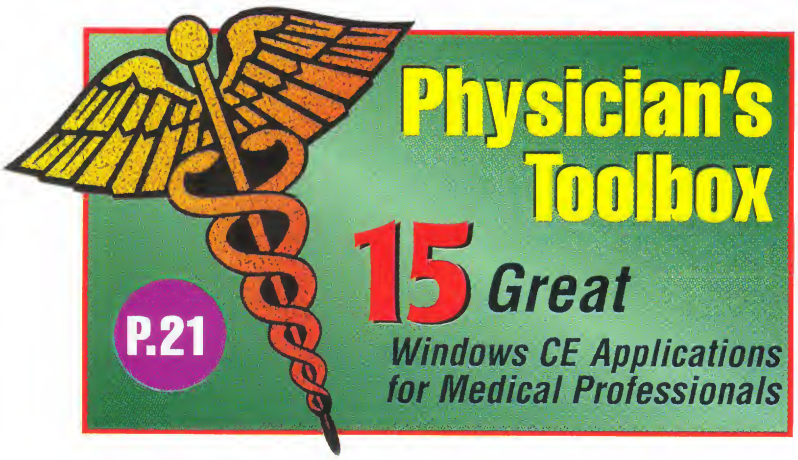

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NEW MULTIMEDIA CASSIOPEIA™ E-100 PALM-SIZE PC

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- Syncs, Schedules & Simplifies — AutoSyncs with Windows® 98. Lets you access your daily schedule and important numbers wherever you go. The Menu Screen lets you display customized icons for easy launching of files and applications.

It seems the only thing the Cassiopeia doesn't do is make popcorn. At least not yet...To get your Cassiopeia E-100, visit one of these Casio dealers near you: BestBuy, Circuit City, CompUSA, Office Depot, and Staples.

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From The Editor

Rich Hall

I had an exhausting but fun week in Las Vegas last November 15-19, attending one of the computer industry's biggest trade shows – COMDEX. I heard Bill Gates talk about the future of Web-center computing, and I saw the latest James Bond movie where HP's Jornada 430se Palm-size PC was used in an attempt to disarm a nuclear warhead (see my COMDEX report in newsBYTES, page 6). I also got to see quite a bit of Windows CE hardware and software, including most of the products discussed in this issue.

We look at three Handheld PC Pros in this issue. Vadem has released an improved version of its unique Clio. It's faster, has more memory, but still incorporates its folding-hinge design. NEC has just announced the new MobilePro 780 and 880, faster versions of its 770 and 800 MobilePros. Finally, we review Hitachi's ePlate H/PC Pro. It's one of the few H/PCs entirely without a keyboard.

You may notice that our "At A Glance" table of Windows CE devices shrank a little this issue. We list discontinued PC Companions as long as I can still find them for sale somewhere. The beginning of the new year was the perfect time to removed some of the older Handheld PCs and a few Palm-size PCs that were no longer being sold on the manufacturer's Web site.

Chris De Herrera reviews Primer, a PDF Viewer for Windows CE devices. PDF files are an industry-standard way of distributing documents, but until Primer was released, there was no way to view PDF documents on a PC Companion. This has the potential of being a very important application.

Handheld PC Magazine's Medical Editor, Ed Zabrek, takes an in-depth look at some medical applications that save a doctor's time and simplify patient care. And in the same section, a young man with asthma describes how he uses his H/PC and a PC Card "spirometer" to monitor the condition of his lungs. David Shier takes a look at database solutions for the Enterprise, and Andy Seybold looks to the future of Windows CE and sees the horizontal turning vertical.

Of course we've got our New PC Companion Products section (over 80 this time), Jim Christian's Quick Tips and PC Companion Tricks, and Tom Gibson's PC Companion ONLINE (The best CE Web sites of the last 1,000 years!).

We're particularly happy to have Steve Seroshek's article on the ins and outs of connecting a PC Companion to an Internet Service Provider. This is the first of a regular column by Microsoft Technical Support on using Windows CE devices. What do you want them to cover? E-mail me at rich@thaddeus.com.

My favorite article in this issue is a short, fluffy one titled "Hailing a Taxi – and the Internet!" It seems the City of San Francisco, in conjunction with the Luxor Cab Company, NEC, and the Metricom wireless service, is experimenting with the future of taxicab service. In San Francisco it's now possible to hail a Web-enabled taxicab.

We start the issue with COMDEX and close it with COMDEX. In his Marketplace CE column, Hal Goldstein discusses his impressions of COMDEX and of the future of Windows CE. Microsoft will de-emphasize the name "Windows CE," choosing instead to place the phrase "Windows Powered" on the case of future PC Companions.

Rich Hall

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Inbox

Because of staff limitations we cannot respond to all letters or e-mail. Please send us questions, suggestions for improvements in the Magazine or in Windows CE, ideas for new software, or general comments. All responses, unless otherwise indicated, are from Rich Hall, Editor of Handheld PC Magazine. *You can reach Rich at rich@thaddeus.com.*

Any Handhelds with floppy drives?

Do any of the handhelds include a floppy drive? A handheld would be perfect for my son's work in school, but since he would be interfacing with a lot of different computers at middle school, it seems a floppy is the best, maybe only, way to move documents from his handheld to the PC. I looked at all the handhelds on your excellent site, but saw no mention of floppy drives. Please let me know if i'm missing something.

Mike Feazel
culh14a@prodigy.com

One company offers an H/PC with a floppy built in. Check out the Dreamwriter I.T. from NTS Computer Systems (nts.dreamwriter.com; Phone: 604-465-3323). They specialize in the educational market, but their devices are more expensive than other H/PCs.A company named Accurite (www.accurite.com) markets an external floppy drive for H/PCs. The Travel 120 Floppy Drive, priced at $269, interfaces with the H/PC or H/PC Pro via cable and PC Card adapter; and accepts 120MB as well as 1.44MB and 720KB floppy disks. Addonics (www.addonics.com) offers a similar product.

Tablet input for PC Companions?

I'm looking for what I consider to be the ultimate peripheral for my Casio E-11. I use handwriting recognition software from ARTrecognition and it's pretty good. It certainly gets me out of having to write one letter at a time. The problem is, with the screen only being 2 inches wide I still can't get a natural writing rhythm. To me the ultimate peripheral is not a keyboard but a touch sensitive writing pad that would be maybe 8" wide by 4" high. With better and better recognition software what could be a faster mode of input? I could see doing letters and email exclusively on my palm device and leaving my laptop at home when traveling. Do you know of anyone that makes or is planning to make such a device? I'd love to get in contact with them. With CE and palmtops/HPCs just starting to really take off *Handheld PC Magazine* is a great resource. Thanks!

John Kringel (Jkringel@aol.com)

I've seen a half a dozen such tablets at computer shows. The problem is, they're designed for desktop PCs, not for the Palm-Size PC or H/PC. I don't think hardware is much of an issue. The devices I saw connected to a desktop PC using a serial cable. All you would have to do is find or create an adapter to connect a tablet to the serial port of a Palm-size PC. The problem is that they were designed for desktops. They don't have software drivers that let them communicate with the P/PC.

There is a product that works the other way around. ActiveTABLET for Windows CE is a software driver that lets you connect your H/PC or P/PC to a desktop PC and use the devices touch screen as a tablet to draw in desktop graphics programs. The developer of this product may be able to point you in the right direction (Softscribe (Canada); Phone: 604-730-0900; Fax: 604-730-0918; E-mail: info@ softscribe.com; Web: www.softscribe.com). Hope this helps, and thanks for your kind words about the magazine. –Rich

Which version of Power Toys for the H/PC Pro?

I love Jim Christian's Quick Tip about PowerToys, but had a problem when I tried to install it on my Jornada 680. The tip said it worked with Windows CE version 3.0, but the Microsoft page says not to download it if I don't have Windows CE version 3 on my Jornada 680 (which has Windows CE version 2.11). So I downloaded PowerToys version 2 and tried to install it on my Jornada. It said it wasn't compatible with the Jornada. So which one do I use?

Loretta Lilly
Lilrett@earthlink.net

The Microsoft Web site is confusing. When they say "PowerToys for H/PC Pro Edition ver. 3.0" they are talking about the version of the built-in Pocket applications, not the operating system. Your Jornada 680 uses the Windows CE 2.11 operating system, but has the H/PC Pro Edition (ver. 3.0) of the Pocket Applications. When you download PowerToys, download "PowerToys for the H/PC Pro Edition ver. 3.0."

They also have a nice, free download titled "Plus! Pack for H/PC Pro Edition ver. 3.0" that you might want to take a look at.

Am I better off with a laptop?

As a student, I feel I must have a portable computer to take with me to help me stay organized and productive. The first time I saw the Vadem Clio I just above fell in love with it. Its very cool style and relatively inexpensive price just turned me on. I was already looking at laptops, but they seemed too pricey. My question is, am I better off with getting a laptop (a portable but completely functional computer) or the less-expensive Clio (which is more of a desktop PC companion)? I could get a laptop for $1,000.

AJ Corbelli (Dial0Kid@aol.com)

The answer to your question is an unequivocal "it depends." I think the Clio, or one of the other mini-notebook-sized H/PC Pros can take care of word processing, organizing, communications, Web browsing, and other basic needs. It's less expensive, has better battery life, turns on instantly and comes with most of the basic software built into it. If it doesn't have the software you need, you can probably get it.

The traditional, powerful, and more expensive Windows 95/98/NT notebook computers make sense if you need to run applications written for those operating systems and not likely to be made available for Windows CE. I'm thinking here of graphics and page layout programs like Adobe PhotoShop and Quark Xpress. Some power users don't want to give up the features of desktop word processors, spreadsheet programs and the like.

Will this be your only computer? If so, you might want to consider a Win98/NT notebook. Do you have a desktop PC at home or in your dorm room? If so, how much do you intend on using your companion computer and for what tasks? I suspect that the Clio will do most, if not all, of what you want it to do.

Are you a big game player? You won't be able to use the memory-intensive games written for desktop PCs on your Clio. If fact, you won't be able to use any software written for Win95/98 or WinNT on a Windows CE computer. Some, but not all, application developers create Windows CE versions of their software. They are usually smaller in size and have fewer features than the desktop PC versions. This is no problem for me because I find that most desktop applications have far too many features. There are an increasing number of games available for Windows CE devices, but they tend to be simpler (card games, arcade games, a few simple role games).

I also like the Clio (see review of the new Clio on page 8). It's remarkably sturdy for it's unique folding-hinge design, it looks sharp, and has very respectable battery life. If all you're going to do is take it with you to class to write notes, or to keep your Calendar and Contacts, or to check your e-mail while you're away visiting someone, I think an H/PC is not only fine, it's a better choice.

From Bill Gates to James Bond

By Rich Hall

COMDEX, the computer industry's annual desert extravaganza, began as it always does; with the opening keynote address delivered by Bill Gates, Chairman of Microsoft Corporation. On Sunday, the night before the show officially opened, I stood in line for an hour with about 500 other journalists to get a good seat for The Bill Gates show. We were ushered into what eventually became a very crowded hall, and then, amid much hoop-la, Mr. Gates came onstage and presented his annual look into the future of computer technology.

The general thrust of his talk was that, just as the "big box" model of computing gave way to the desktop PC model, we were now in the middle of another change in the way we'll look at this technology. Desktop computers will continue to be the device of choice for professions (the so-called "knowledge workers"). But new and easier-to-use "information appliances" will start to appear in the near future.

Web Companions — As examples of these devices, Bill mentioned PC Companions, digital set-top boxes, and the new and more powerful "rich" cell phones. He also unveiled several prototypes of a new class of device called the "Web Companion", inexpensive devices designed to offer simple Internet and e-mail access, but not much else. These looked like small and simple notebook computers, with color display, a keyboard, and in some cases a built-in telephone. However, all they have in the way of software was a built-in operating system, Web browser, and a few utilities. The operating system in all of these information appliances was Windows CE.

Bill demonstrated the capabilities of Microsoft's new Windows 2000 operating system and explained how its reliability would benefit eCommerce. He briefly discussed ClearType font technology, which will improve font display resolution for many different devices, including future versions of Windows CE.

Microsoft and the "PIM Plus Era"

Before going to the new James Bond movie (see below) I had a snack at the Microsoft press booth and spoke with Brian Shafer about Microsoft's Windows CE plans. The emphasis of the talk was the "Information anytime, anywhere" theme that Microsoft has been promoting. Microsoft sees Windows 2000 as the "server" end of that goal – the server being the place in the organization where the information is stored. Microsoft is strongly positioning Windows CE to be a big part of the "client" end of this equation, and sees the highly portable PC Companion as one of the ways mobile users will access information.

Screen 1: Casio will market an external keyboard for its E-100/105 Palm-size PCs.

XTNDConnect Server — Along these lines, we discussed the expanding relationship between Extended Systems and Microsoft. Extended Systems (www.extendsys.com) recently purchased ASL Systems and took over marketing and development of the ASL Connect synchronization program. The product, now called XTNDConnect Server, synchronizes mobile devices, including Windows CE PC Companions and Palm Computers, with Lotus Notes and Microsoft Exchange servers and custom ODBC-compliant databases. Microsoft and Extended Systems will work together in a number of areas, including joint marketing and distribution efforts as well as technical collaboration for future products.

Smart Card Technology — We also discussed Microsoft's support of Smart Card technology. A Smart Card looks like a credit card, but contains an ultra-thin microprocessor that enables the card to save a variety of information, including security access codes, personal identification, medical information, and more. Microsoft is getting behind Smart Card technology in a big way, putting Smart Card support technology in the various Windows operating systems and providing a Windows Smart Card Toolkit to developers. More information is available at www.microsoft.com/smartcard.

PIM Plus Era — Finally, we discussed the evolution of PDAs and the upcoming "PIM Plus Era." Microsoft hasn't been doing very well competing against the simpler PDAs like the Palm III, and I think they finally realized why. The Palm PDAs are small, simple devices that do PIM tasks well. Windows CE is designed not only for PIM tasks, but to support sophisticated enterprise-wide situations better than the Palm. But then MS went ahead and marketed the Palm-size PC as a competitor to the Palm – in essence, an equal. It isn't.

Microsoft is now starting to talk about a "no compromise Personal Information Manager" that can come in a variety of form factors and provide, in addition to the simple stuff, more options for the enterprise. This is what they mean by the "PIM Plus Era." In it you'll see some new Handheld PCs, but expect a lot more focus on the Palm-size PC form factor. Expect also to see a variety of new "information appliances" powered by the Windows CE operating system.

Windows CE UpLink — (www.microsoft.com/windowsce/uplink/) I also found out about Microsoft's new information resource Web site written by and for people who own Palm-size PCs. The site is designed to help novices and experts get the most out of their Palm-size PCs. Check it out for tips, how-tos, product reviews, columns, links and more.

"Windows powered" PC Companions — One thing I discovered after COMDEX was that Microsoft has decided to stop labeling PC Companions with the phrase "Powered by Windows CE." Instead, the new PC Companions will have the label "Windows Powered." The operating system will still be Windows CE, but Microsoft will stop advertising the difference. I don't think this change will affect *Handheld PC Magazine* much. "Windows Powered" on the outside still means Windows CE on the inside – and we'll be covering it.

Walking the floor

COMDEX is huge. Over 10,000 exhibitors crowd the three biggest convention centers in Las Vegas. Over 200,000 visitors trudge through the crowded aisles, 10:00 a.m. to 5:00 p.m., Monday to Friday. I was one of them, visiting every Windows CE exhibitor I could find.

I stopped by Casio's booth and saw a couple of nifty things. One was an E-100/105 External Keyboard for the color-screen Cassiopeia Palm-size PCs. Open up a clamshell and slip the Cassiopeia into a slot and you're connected and ready to type (see Screen 1). This is a customized version of Landware's GoType portable keyboard developed originally for the Palm PDAs and modified to work with the E-100/105 (www.landware.com/products/gotype/gotypeps.html). No word on when this will be available, but I imagine it will be soon and will be priced in the $80-$100 range. It should be available through Casio's online store, at www.casio.com/mobileinformation/.

I also saw the Cassiopeia Corporate Palm-size PC, a ruggedized version of Casio's E-15 Palm-size PC, to be released in the U.S. sometime this year for vertical markets. The Cassiopeia Corporate is a monochrome-screen device with a rugged plastic shell — it feels very sturdy. One of the remarkable things about this device is the battery technology used. Instead of the Lithium-Ion battery packs found in other Casio's, the Cassiopeia Corporate has a flat "Lithium-Polymer" rechargeable battery pack that attaches to the back of the P/PC. The battery is the height and width of the P/PC, and adds about ½ inch to the thickness of the unit. The Lithium-Polymer battery comes in three capacities, the highest of which will power the Casio P/PC for an almost unbelievable 72 hours between charges. Extensive use of backlighting will cut that figure in half, but even a mere 36 hours between charges is impressive. Unfortunately, the battery technology is new and expensive, and Casio only plans to use it with its ruggedized Palm-size PC.

The folks at SanDisk showed me their new Double Density Technology that increases the capacity of their Flash memory cards dramatically. SanDisk's MultiMediaCards, CompactFlash cards, PC Cards, SD (Secure Digital) Memory Cards, FlashDrives and flash chipsets will benefit from this development. Expect to see 300 MB CompactFlash and 1.2 gigabyte (GB) PC Cards next year.

I got a quick look at Hewlett-Packard's new Jornada 690 Handheld PC Pro, the follow-on to the popular HP Jornada 680. The 690 will include 32 MB of RAM vs. the HP Jornada 680's 16 MB. The HP Jornada 680 will continue to be available for $899, the HP Jornada 690 will be priced at $999.

Ed Zabrek, our Medical Editor, had a very interesting conversation with Lernout & Hauspie, the company Microsoft worked with to give the Windows CE Auto PC voice command recognition capability. L & H specializes in speech and linguistic technology and has a number of popular speech-to-text and language translation programs for the desktop PC environment.

The exciting news is that L & H is working on Windows CE versions of their programs, including text-to-speech and speech-to-text technology for Windows CE, as well as a specialized speech-to-text program for medical terminology. They are also working on language translation technology for Windows CE (i.e. English to Spanish). This has the potential for being a killer application for Windows CE. We'll keep our eye on it.

Industrial-strength CE

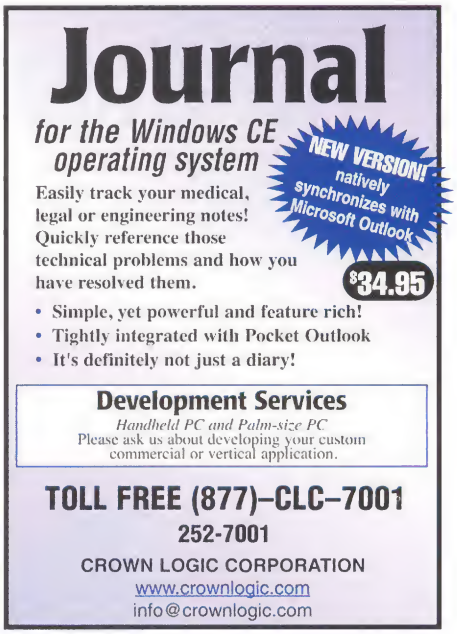
One of the things that impressed me at COMDEX was the number of specialized Windows CE devices being displayed. I already mentioned Casio's ruggedized Palm-size PC. A number of H/PC Pros without keyboards were also being shown, including the Hitachi ePlate (see review, page 13), the Fujitsu PenCentra 130, and the Two Technologies TouchLite. All of these devices have wireless options and are designed for vertical applications, such as route tracking and inventory control.

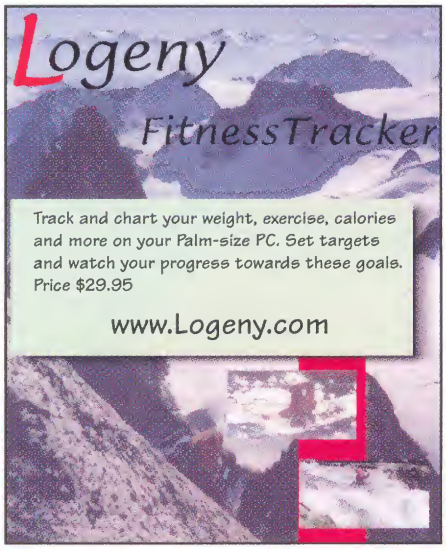
I saw another very remarkable device from Scanz Communications. The Scanz Scannor is a small, wireless video replay device powered by Windows CE. This device gives any mobile worker the ability to monitor a video system, and is of use to police or security personal, healthcare workers, factory managers, etc. Scanz Scannor is initially aimed at sports officials who need to access a replay of an event to make a close call, or justify a disputed one. The device wirelessly interfaces with a stadium's video system, allowing instant access to video replays. But for every referee needing one of these devices, there are 10,000 fans in the stadium who would love to second-guess a disputed call. This device has a lot of potential.

One Palm-size PC, shaken not stirred!

One of the highlights of COMDEX was … the new James Bond movie! I won't tell you too much of the plot of *The World is Not Enough*, except to say that James Bond saves the world from a sadistic villain with the help of a beautiful woman who falls madly in love with him. The interesting thing about the movie, from the perspective of a journalist attending COMDEX, is that the woman (a nuclear physicist named "Christmas Jones") walks around the first part of the movie with a HP Jornada 430se Palm-size PC strapped to her hip.

Hewlett-Packard rented a movie theater on the Las Vegas strip for the exclusive press premier of *The World is Not Enough*. And each time a character in the movie used some piece of computer hardware, the audience applauded. The audience politely approved of the Nokia cellular phone and the Toshiba laptop computer. The HP Jornada 430se got the biggest round of applause. ■





Vadem's improved 3-in-1 Clio

Still sleek and sexy, the new Clio C-1050 H/PC Pro is faster, has more RAM, and sports a sharp 64K color display.

BY CHRIS DE HERRERA

Vadem's original Clio C-1000 was one of the most unique and functional of the Handheld PC Pros (see review, Mar/Apr 99, pg. 15). The new Clio C-1050 has the same unique "Swing-top" hinges that let you use the Clio as a notebook, a tablet and presentation display. In fact, from the outside the new Clio looks identical to the C-1000. It still looks like a vanity mirror attached to a keyboard.

The improvements are inside the Clio. The C-1050 is faster, has more RAM memory, and sports a sharper screen than its predecessor. Under the hood the new Clio is powered by a 168 MHz NEC Vr4121A MIPS processor (almost twice the speed of the previous version). The C-1050 comes with a healthy 32 MB of RAM standard (instead of optional as it was in the C-1000). Finally, the backlit 9.4" 640x480 VGA screen now supports 65,536 colors.

Three H/PC Pros in one

While operating as a traditional notebook computer, the unique "Swing-top" hinge lets the screen tilt forward and back as well as at angles to provide the best viewing angles and location. This design lets the user adjust the screen closer to them. It also moves the center of gravity forward so when you click or draw on the touchscreen you won't knock the unit on its back. The keys on the near full-size keyboard are angled out for easier typing.

You can flip the screen out and down on the keyboard to put the Clio in its tablet mode operation. When the user switches to this mode, the built-in Calligrapher 5.3 handwriting recognition software is automatically launched. Applications are launched, menus accessed, and data entered using the touchscreen. Calligrapher 5.3 is the newest version of that excellent handwriting recognition software. It includes improved cursive,

print, or mixed handwriting recognition and a soft-keyboard that displays an image of the keyboard on the screen. You can tap the keys with your stylus to enter the characters.

Finally, you can flip the Clio's screen again to put it into Display mode. This is excellent for small group presentations using Pocket Powerpoint. As with the original model, the Clio C-1050 in Display mode slides easily on smooth surfaces. Be careful with it in this mode.

New screen rotation capability

New to the Clio C-1050 is screen rotation capabilities. In all modes you can select the option to rotate the screen in 90-degree increments. When using it as a Tablet, you can flip the screen 90 or 270 degrees to make it long and narrow like a standard piece of paper. Flip the screen 180 degrees in Presentation mode so the image is not displayed upside down. The Clio uses the graphics controller to rotate the display, which means this feature does not slow-down the performance of the system.

New, faster modem

Much of rest of the new Clio is the same as the C-1000. The hardware specifications are summarized below. However, new to the C-1050 is the 56 Kbps Lucent hardware modem. This should make Web browsing and downloading e-mail a more pleasant experience for Clio users.

Like the earlier C-1000, the Clio C-1050 has a non-standard serial port. A small adapter is included to convert it to a standard 9-pin serial port. An unfortunate carry-over from the C-1000 is the CompactFlash slot, located in the back of the unit behind the main 10-hr Lithium-ion battery. As with the previous Clio, you must remove the main battery to access the CF slot. This limits the type of CF cards you can use in the Clio. CF memory cards work fine, but you can't use a CF LAN adapter card because the main battery gets in the way of the connecting cable. You have to remove the main battery to access the CF slot. The backup battery lasts about 10 minutes, so be quick about inserting or removing a CF card.

Chris (TechEd@CEWindows.net) is a special correspondent and contributing author for Handheld PC Magazine. He maintains one of the best Windows CE Websites (www.cewindows.net/). Chris is a Microsoft Comm Link columnist covering communications and Windows CE issues on Microsoft's Windows CE Web site. Chris is a Microsoft Most Valuable Professional for Windows CE and writes articles on Windows CE for his own Website and for other mobile computing publications. Chris regularly participates in chats on the Microsoft Network and various newsgroups (including Micro soft.public.windowsce).

The Clio's unique "Swing-top" hinge lets you use the C-1050 as a traditional notebook computer (left), as a pen-entry tablet (lower right), or as a display for Pocket Powerpoint presentations (top right).

Like its older cousin, the new Clio comes with ROM that can be upgraded by the user. That means that when Microsoft releases a newer version of the Windows CE operating system and built-in applications, Vadem may choose to make a user-installable upgrade chip available to its users.

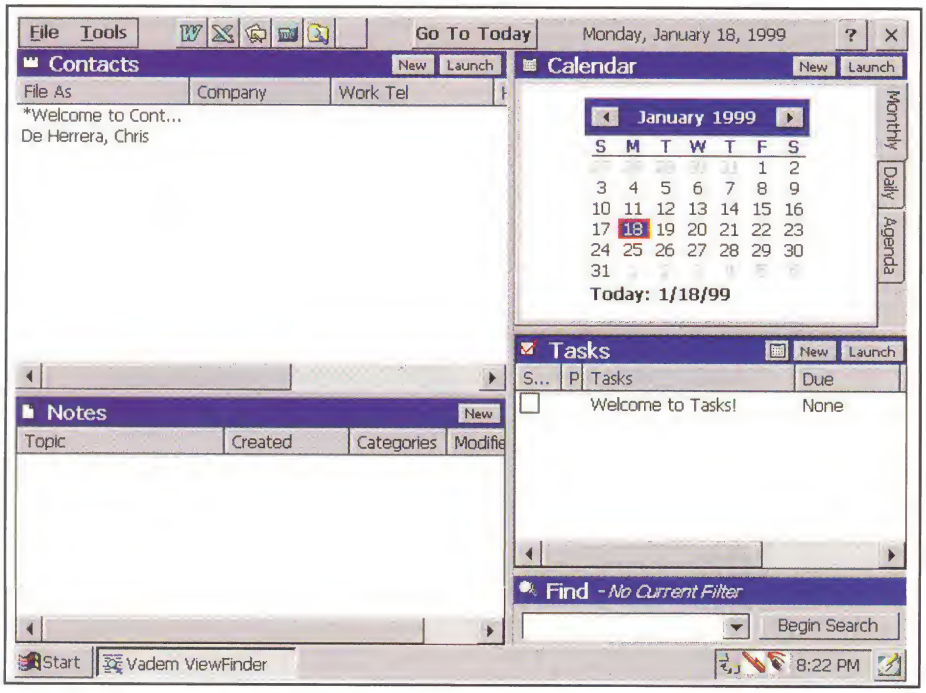
Built-in and optional software

The Clio comes with the Windows CE 2.11 operating system and the standard H/PC Pro software, including Pocket Word, Excel, PowerPoint, Access, Calendar, Contacts, and Tasks. Vadem has also built in the latest version of the Calligrapher handwriting recognition program, the Citrix ICA Client; bSquare's bFAX Pro and bUSEFUL Backup Plus; Westtek's JETCET Print drivers, utilities and PowerPoint Companion; a Contrast/brightness application; an Internet connection wizard; and Vadem ViewFinder.

Spec Sheet

Vadem Clio C-1050 — $999

Contact:	www.vadem.com/clio/
HARDWARE	
CPU	168 MHz MIPS
Display	640x480 (9.4" diagonal) 65K color backlit
Memory (in MB)	32 RAM / 24 ROM (upg)
Communications	56 Kbps V.90 Lucent modem
External ports	Serial; fast IrDA; ; RJ-11 modem port
Card slots	One CF Card; One PC Card
Power	Lithium-Ion (10 hr per charge max); AC adapter
Dimensions	8.75 x 11.25 x 1 in. / 3.3 lb. (including battery & power adapter)
Other features	Built-in speaker & microphone
Accessories, standard	Travel Dock; serial cable; AC Adapter; RJ-11 phone cable
Options	Automobile Power Adapter; Slip Case; Executive Case; Multi-Voltage Adapter
SOFTWARE	
Operating System	Windows CE 2.11
Built-in MS apps.	H/PC Professional Edition set
Built-in Mfg & 3rd party apps.	3rd Party: Citrix ICA Client; bSquare bFAX Pro and bUSEFUL Backup Plus; Westtek JetCET Print drivers, utilities and PowerPoint Companion; ParaGraph CalliGrapher 5.3; OEM: Vadem ViewFinder; Contrast/brightness applet; Clio Get Connected (Internet connection wizard)
User-installable apps. (on CD)	MS ActiveSync 3.0 synchronization software; Vadem ViewFinder Notes (synchronizes with desktop PC); bSquare bUSEFUL Suite (evaluation version); ParaGraph NetWriter; Westtek JETCET Print Professional (evaluation version)
Comments:	90°, 180°, 270° screen rotation; Swing-Top pivoting arm lets you use the Clio in tablet, notebook, or presentation mode.



Screen 1: ViewFinder lets users view, edit and create new Calendar, Contacts and Tasks on one screen, as well as launch Pocket Excel, Word, Powerpoint and the Calculator.

ViewFinder allows users to view, edit and create new Calendar, Contacts and Tasks all on one screen at the same time as well as launch Excel, Word, PowerPoint and Calculator. ViewFinder is more useable than the similar application found on the HP Jornada (see Screen 1).

Shipping with the Clio C-1050 on CD-ROM is Microsoft's ActiveSync 3.0 (synchronization software); Vadem's ViewFinder Notes (synchronizes with desktop PC); bSquare's bUSEFUL Suite (evaluation version of a utility suite); ParaGraph's Net-Writer; and Westtek's JETCET Print Professional (evaluation version).

Adding power to a unique design

The Vadem Clio is one of the most unique and functional designs I have seen in an H/PC Pro. The added processor speed, enhanced RAM memory, sharper color display and faster modem make the Clio C-1050 one of the best H/PC Pros available. The Vadem Clio C-1050 retails for $999 and is available from Vadem's online store (access from www.vadem.com/clio/). ■

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NEC's MobilePro 780 and 880 H/PC Pros

NEC has updated its MobilePro 770 and 800 Handheld PC Pros with a faster processor and enhanced display.

BY RICH HALL

I was away from the office recently, visiting the annual COMDEX computer show. I travel two to three times a year and each time I face two irreconcilable needs: the first is to be sure to take along everything I need; the second is travel as light as possible. I wish NEC had loaned me the MobilePro 780 a couple of weeks earlier.

The NEC MobilePro 780 and 880 are the upgraded versions of to Handheld PC Pros NEC introduced last year. Both have large (over 90% full-size) keyboards that are easy to type on. The reason I wanted the 780 earlier is because it has a ½ VGA color display, making it the smallest of the truly typeable H/PC Pros. And when you're on the road, smaller is better.

Faster CPU

Physically, the NEC MobilePro 880 is almost identical to the 800, and the 780 to the 770. However, both have NEC's new 168 MHz processor. The 780 I tested was noticeably faster than the 770 and downright snappy compared to the earlier 750c MobilePro. The screens are also better on the new MobilePros. Again, they are the same size as the previous 770 and 800.

Another physical improvement to the 780 is the addition of a "scroll dial" on the right side of the clamshell hinge. The scroll dial works like the rocker switch found on Palm-size PCs. You can use it to move up and down through menus or documents, and select menu options. I found it a little difficult to use when the 780 was sitting on a desk or table. To view the display properly, the screen has to be almost perpendicular to the keyboard. In this position, it blocks the scroll dial. However, when you hold the 780 in your lap or hands, the screen does not block the scroll dial. It's placed within easy reach of your right thumb and comes in handy for menu navigation and option selection. The 880 does not have a scroll dial; probably a wise choice considering the larger size of the 880.

780

880

I like the arrangement of the ports and card slots on the MobilePros. The Type II CompactFlash slot is on the front edge of the machine and easy to access. The Type II PC Card slot is on the right edge. The serial, VGA-out, and power port are on the left edge. The only thing on the back of the MobilePro is the IrDA port.

Simple, useful set of built-in software

The MobilePro 780 and 880 come with the same set of built-in software. Microsoft provides the Windows CE 2.12 operating system and the Handheld PC Professional Edition set of applications. These include "Pocket" versions of Word, Excel, Powerpoint, Access, and Outlook (Calendar, Contacts, Tasks, and Inbox). Also included with the H/PC Pro applications are various setup and communications utilities and the game Solitaire.

In addition to these Microsoft programs, NEC has built into ROM the following programs:

- bSquare Backup Plus (www.bsquare.com) – a popular, full-featured backup utility.
- bSquare Script (www.bsquare.com) – a scripting program that helps you automate repetitive tasks.
- NEC MobilePro FAX – a fax send and receive program.
- ASL-Connect client (www.extendsys.com) – a server synchronization that enables multiple H/PCs to remotely connect, over any networking infrastructure, directly to corporate systems. It provides synchronization

Spec Sheet

NEC MobilePro 880	**$899**
NEC MobilePro 780	**799**
Contact:	www.neccsd.com/products/mobilepro/mobilepro.html
HARDWARE	
CPU:	168 MHz NEC VR4121
Display 780:	8.1" diag, 640x240 ½ VGA 64K color backlit touchscreen
Display 880:	9.4" diag. 800x600 SVGA 64K color backlit touchscreen
Memory:	32 MB RAM (exp 48); 24MB ROM (upg)
Communications:	56 Kbps v.90 hardware modem
External ports:	USB (880 only); serial; fast IrDA; headset jack; RJ-11 jack
Card slots:	1 PC and 1 CF card slots (Type II)
Power:	AC adapter; Lithium-Ion rechargeable battery (880: 8 hr; 780: 10 hr)
Dimensions 780:	9.6x 5.2x 1.1 in.; 1.7 lb.
Dimensions 880:	9.6x 7.5x 1.1 in.; 2.6 lb.
Other features:	Microphone; Speaker; physical "scroll dial" on 780.
Accessories, standard:	AC adapter, VGA-out cable; PC connectivity cable; RJ-11 modem cable.
Options:	Replacements for accessories; RAM memory expansion; Deluxe carrying case; Compact and Standard cases for the 780; Docking cradle; Earphone/microphone combo; Printer cable with built-in serial-to-parallel adapter; Battery adapter for standard AA's (780 only); CF storage card.
SOFTWARE:	
Operating system:	Windows CE 2.12 OS
Built-in MS applications	Handheld PC Professional Edition set
Built-in add-on software:	OEM: MobilePro Fax; 3rd party: bSquare Backup; bSquare Script; Citrix ICA Client; ASL-Connect client
User installable apps. (on CD):	no information available.
Comments:	The 880 is one of the few large-screen H/PC Pros with a touchscreen. The 780 is the only ½ screen H/PC Pro with a large touchtypeable keyboard. The 780's "scroll-dial" is built into the hinge and functions like the mouse wheel found on the newer mouse devices.

between the H/PC and any database, including Microsoft Exchange and Lotus Notes.

• Citrix ICA client (www.citrix.com/) – provides server-based computing for full Windows applications.

No information if available on what, if any, user-installable software will be included on CD-ROM.

Another enterprise solution

Both the 780 and 880 can have 4 MB of internal Flash ROM built in as an option. This capability is aimed at enterprise users. It gives an organization that ability to easily build in proprietary business applications and security features. The ASL-Connect and Citrix ICA client software enhance the ability of the MobilePro user to connect and synchronize with enterprise networks. Finally, NEC has decided to include a slim set of add-on applications with the new MobilePros. These add necessary functionality for the corporate user, but NEC doesn't seem to be trying to "wow" the individual buyer with a comprehensive set of additional applications. This strategy leaves the software buying decisions up to the corporation, and it keeps the initial cost of the MobilePros down.

I prefer a touchscreen to the touchpad and other mouse-like pointing devices found on some of the larger H/PC Pros. For me, tapping on the screen is much easier and accurate. For this reason I like both the 780 and 880.

I also prefer the ½ VGA screen of the 780 to the full-screen near-notebook sized H/PC Pros I've been seeing lately. The smaller screen keeps the overall size and weight of the 780 down, and while it's not as small as HP's 680/690 Jornada, it has a more useable keyboard. I don't need a full-size screen to check my e-mail, write, edit, and do other computer-related tasks when I'm on the road. The 780 is easy to carry around in a briefcase and the smaller screen eats up less power than a full-screen device.

If you need a full-screen device for Web browsing, or simply prefer the larger screen, the NEC MobilePro 880 is a a great choice; particularly if you like touchscreens. But for me, once I can get my hands on a production model, I'll be traveling with an NEC MobilePro 780.

The MobilePro 880 H/PC Pro will replace the 800 and will retail for $899. The MobilePro 780 H/PC Pro will replace the 770 and will retail for $799. Both will be available through NEC dealers, and authorized online retailers including The NEC Online store (www.nec-now.com/necnow/). ■

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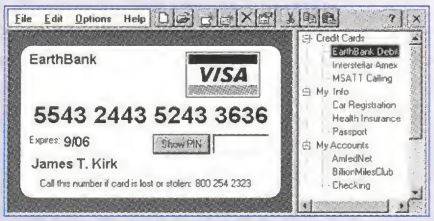

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Replace your receipts with Keep Track. Quickly and easily record ATM transactions, charges, online purchases, cash and expenses.

PLUS: Recordian, TapeMinder, GameBag One and more. Visit our website for free trials of our handheld, palmsize and desktop software.

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ePlate

Hitachi's unique ePlate H/PC Pro is a pen-entry only tablet — it has no keyboard!

BY RICH HALL

I watched an episode of the science fiction series Star Trek last year in which the crew of the starship Voyager went back in time, from the 22nd century to the late 1990s. For some reason they had to access data on an "old" desktop PC. When presented with a keyboard, the main character said something like, "I'm not very good with ancient methods of interfacing with computers." Apparently, the designers of Hitachi's new ePlate agree with this sentiment.

Hitachi's new ePlate Handheld PC Pro looks a little like a Palm-size PC on steroids. It measures 8.7 x 6.3 x 1.2 inches and weights just under two pounds – well over twice the size of the largest Palm-size PC. What is different about this H/PC Pro, and what makes it similar to the Palm-size PCs (and computers of the 22nd Century) is that it doesn't have a keyboard. You access and enter all your data using the large color touchscreen.

Designed as a tablet

The ePlate was designed to be used as a tablet or notepad. In fact, it's about the size of a standard 9 x 5 inch memo pad, though it's over an inch thick. The point is that you hold the ePlate in one hand and use a pen-like stylus in the other to tap on the screen to open applications and access features. More importantly, you use the stylus to "write" on the screen to enter data. Handwriting recognition software translates your writing into text and characters.

All of the Handheld PCs and most of the newer H/PC Pros come with touchscreens, and handwriting recognition software can be installed on all of them. But I've always found it awkward to use handwriting recognition on a Handheld PC or H/PC Pro because the keyboard gets in the way. This is not the case with the Hitachi ePlate.

An H/PC Pro without the keyboard

The Hitachi ePlate is a traditional Handheld PC Pro, but without a keyboard. It has a fast, 128 MHz SH4 processor, a large and readable color touchscreen display, and a host of I/O interfaces. These include a 56 Kbps modem; and serial, USB, VGA and IrDA ports. It has one PC Card and one CompactFlash Card slot, and a mono headphone jack. The USB allows you to connect an external keyboard to this device. I think this will prove to be an important feature.

The ePlate comes with the Windows CE 2.11 operating system and the H/PC Pro class of "Pocket" applications built into ROM. The Pocket applications are versions of popular Microsoft software optimized for the smaller computers. They include Pocket Outlook (Calendar, Contacts, Tasks, InBox), Pocket Word, Pocket Excel, Pocket Powerpoint, Pocket Access, Pocket Internet Explorer and Windows Explorer. Also built into the ePlate from Microsoft are setup and communications utilities, World Clock, a simple calculator program, the game Solitaire, and InkWriter. The final application supplied by Microsoft is the Voice Recorder, which works with the built-in microphone and speaker to let you record and play back short voice memos.

The unit I tested also had JotPro pre-installed (but not built into the unit). JotPro is CIC's handwriting recognition program. CIC is listed as one of Hitachi's partners in this project, and I assume that means that JotPro is the program that ships with the ePlate.

Handwriting recognition a must

Without a keyboard, you have to have a good handwriting recognition program to enter data on the ePlate. As I mentioned, the ePlate Hitachi loaned me for this review came with CIC's JotPro handwriting recognition software pre-installed (more information at www.cic.com). JotPro is the full ver-

Hitachi ePlate (HPW-600ET) — $1,199 **Spec Sheet**

Contact:	www.hitachi.com/hpc
HARDWARE	
CPU	128 MHz SH4
Display	640x480 (7.5" diagonal) 65K color STN backlit touchscreen
Memory (in MB)	16 RAM (exp 32) / 32 ROM (upg)
Communications	56 Kbps modem
External ports	Serial; USB; VGA; fast IrDA; headphone jack; RJ-11 modem port
Card slots (Type II)	CF Card (Type II); PC Card (Type II)
Power	Lithium-Ion (9 hr per charge); AC adapter
Dimensions	8.7 x 6.3 x 1.2 in.; 29.6 oz.
Other features	Touchscreen only, no keyboard
Accessories, standard	AC adapter; serial cable; LCD hard cover; LCD protection sheet; manuals; Windows CE Services; additional software.
Options, additional	Automobile power adapter; shoulder strap; hand strap; rain jacket; stand/wall mount; LCD hard cover; spare battery; spare stylus; LCD protection sheet.
SOFTWARE	
Operating System	Windows CE 2.11
Built-in MS apps.	H/PC Professional Edition set of built-in applications
Built-in Mfg & 3rd party apps	The version I tested had the full version of CIC's Jot handwriting recognition program pre-installed, not built into ROM.
User-installable apps. (on CD ROM)	n.a.
Comments:	Hitachi will target vertical markets through Value Added Resellers.

sion of the Jot program that comes built into the Palm-size PCs. JotPro recognizes printed handwriting a character at a time. When you lift the stylus off the touchscreen, JotPro "figures" that you're finished entering the character and processes it. There are some exceptions to this – JotPro will let you lift the stylus up to dot your I's and cross your T's. (JotPro is similar to the Grafitti program built into the popular PalmPilot and other Palm computers. In fact, it recognizes most Grafitti characters.)

JotPro is a simple and serviceable program, well suited for limited text entry. It processes the text quickly and relatively accurately. But you occasionally have to adapt your printing style to the way it recognizes characters. If you're going to enter a quick note, an appointment, or jot down a quick answer to an e-mail, JotPro works fine. Because of this it was an excellent choice for the smaller Palm-size PCs. And it's probably a pretty good choice for the ePlate. However, it's a little slow and awkward if you have to enter a lot of text.

I'm a writer and editor and probably not the user Hitachi had in mind. I do a lot of text entry and keyboards are great for that. If I was going to use ePlate on a regular basis, I'd probably use it for editing and rewriting, for answering e-mail, and for composing short documents. Even so, I'm not sure I'd be satisfied with JotPro.

I decided to test out Paragraph's handwriting recognition program, CalliGrapher (more information at www.paragraph.com). Unfortunately, the newest version (5.3) doesn't work with the ePlate yet. I downloaded a free evaluation copy of Calligrapher 5.1 and installed it on the ePlate.

CalliGrapher uses "fuzzy logic and neural net techniques" to recognize all styles of handwriting – cursive, printed or mixed. It also includes a comprehensive spell checker for all Windows CE applications. I have very inconsistent handwriting, mixing

Handwriting Recognition

Handwriting recognition is a must on the Hitachi ePlate. Fortunately, there are a number of programs that add this capability to the ePlate or any PC Companion.

• BijiEditor – a NoteTaker-like editor able to process handwriting characters. Windows CE and Win95/98/NT versions are available. Shareware: $10; Use with: H/PC; P/PC; Demo or download available; Contact: Biji Technology; http://come.to/bijitech.

• ARTrecognition Professional Edition – combines ART's handwriting and voice recognition software products. smARTwriter is a trainable handwriting recognition program that lets you write in your own style. You can create custom symbols or gestures to open applications or insert boilerplate text. $79.95; Use with: H/PC; H/PC Pro; P/PC; Contact: ART Advanced Recognition; www.artcomp.com.

• ArtSPen – a handwriting recognition tool with a single-character input style. ArtSPen has free style handwriting with self-learning and full customization capability, full non-English character input support, and text macro support for speed writing in shorthand. Shareware: $15; Use with: H/PC; H/PC Pro; P/PC; Demo or download available; Contact: ArtSoft; www.artsoft.ru/eng/artsghpc.htm.

• CalliGrapher 5.3 –adds handwriting recognition for all styles - cursive, print or mixed. An on-screen pop-up keyboard to give users additional input flexibility and the built-in editor can be used for custom user-defined vocabularies. CalliGrapher also has a comprehensive spelling checker for all Windows CE applications. H/PC version has the option of turning the keyboard off. $49.95; Use with: H/PC; H/PC Pro; P/PC; Demo or download available; Contact: ParaGraph International Inc; www.paragraph.com.

• Jot Pro – a simple handwriting recognition program that combines a natural character set with a patented user interface for accurate and rapid single-character input. Jot supports both U.S. and Western European characters. $59 (upgrade for Palm-size PCs is $29); Use with H/PC; H/PC Pro; P/PC; Palm; Contact: CIC; www.cic.com.

• PenReader – a handwriting recognition utility that recognizes English, Russian and the Extended Latin character set, which is widely used in many European languages, such as German, French, Spain, Czech, Polish, Dutch, Scandinavian and others. PenReader supports 27 European languages. $19.95; Use with: H/PC; P/PC; Paragon Software; www.penreader.com/index.htm.

• WerdIt – transcribes single-characters as they are written. Once transcribed, you can copy the text into another application or save and load files from within WerdIt. Shareware: $7; Use with: H/PC; P/PC; Demo or download available; Ewerd, Inc; www.ewerd.com.

cursive and printing regularly. CalliGrapher was able to figure out what I was writing almost all of the time. I had to put a little extra attention on differentiating between small and capital letters. Also, I had to spend a little time learning how to select and delete words and sentences.

CalliGrapher's translation process takes a few seconds, I assume because the sophisticated handwriting recognition program takes longer to "read" your script. It was not uncommon to find myself a whole sentence ahead of CalliGrapher. Most of the time it would do nothing until I'd pause for a second or two. Then it would process my writing. The program was remarkably good at figuring out what I was writing.

responses short – a good habit to develop when you get up to 50 e-mails a day.

It's much easier to use handwriting recognition on the ePlate than it is on any of the Handheld PCs or H/PC Pros with keyboards. The only exception to this is Vadem Clio (see review on page 8). I looked at the ePlate more from the perspective of a traditional end user. That is why I tested CalliGrapher on it. The truth is, as an end user, I'd still want an H/PC Pro with a keyboard.

But that probably doesn't concern Hitachi too much. They're positioning the ePlate as a vertical market solution for the sales, healthcare, and other service industries. It's well suited for specific, mobile, vertical applications like checking inventory, filling out an order form, making short notes, etc. But the fact that it also comes with the H/PC Pro applications built in, along with an internal modem, means that Hitachi must be targeting higher-level mobile workers. I wouldn't see this being used by a physician's assistant to fill out a patient history form in the office. Nor would I expect to see it in the hands of a factory worker doing an inventory.

I could see the ePlate being used by a physician as she travels to different hospitals, to update patient records, occasionally check her e-mail, or write short memos. I could also see a mid-level manager in a service industry using it while traveling, to access his companies network, communicate with his peers, and use custom applications to accomplish his work.

However, I don't think either of these hypothetical individuals would be satisfied without a keyboard. We're not quite ready for the 22nd Century yet. Check out the Travelboard 634 (Genovation, www.genovation.com/) – a sleek, portable external keyboard compatible with Windows CE PC Companions as well as Windows 95/98/2000 notebook PCs and Palm computers.

Hitachi's new ePlate Handheld PC Pro looks a little like a Palm-size PC on steroids. You access and enter all your data using the large color touchscreen.

Another handwriting recognition program worth mentioning is smARTwriter from Advanced Recognition Technologies (www.artcomp.com). smARTwriter adapts to your style of writing. You begin with a 5-10 minute training session to "teach" smARTwriter how you write. It learns to recognize your printed handwriting and lets you define "gesture macros," written symbols or groups of letters that can open applications or insert boilerplate text (CalliGrapher has a similar macro feature). The big advantage smARTwriter has over CalliGrapher is that you teach it how you make your characters. Because of this, it doesn't have to do as much processing as CalliGrapher and can translate characters and words faster – it keeps up with you as you write.

I fiddled with all three programs and frankly, I still wouldn't give up my keyboard. However, CalliGrapher was the program that suited my inconsistent style of handwriting the best. I've listed some other handwriting recognition programs in the sidebar on the previous page.

Great for accessing data

I did use the ePlate for reading and responding to e-mail, accessing Calendar and Contact information, viewing data on spreadsheets, and playing a few games. It was great for accessing and viewing data, and for anything that did not involve a lot of data entry. I ended up appreciating its limitations when dealing with e-mail. The lack of a keyboard forced me to keep my

Hitachi has positioned the ePlate primarily as a vertical market solution and expects independent VARs (Value-Added Resellers) to customize it for specific niches. However, individual units are available through the MobilePlanet online store (www.mobileplanet.com). The ePlate with 16 MB RAM sells for $1,199.95 and the 32 MB version for $1,299.95. Both are listed (as of 11/10/99) as being in stock. ■

Primer: a PDF viewer for Windows CE

View PDF documents on your Windows CE PC Companion.

BY CHRIS DE HERRERA

PC Companions are promoted as mobile data access tools. With them, you are supposed to be able to access the information you need, wherever you are. For the most part this is true. But there have been some notable gaps in this information access. One of the big ones relates to PDF files.

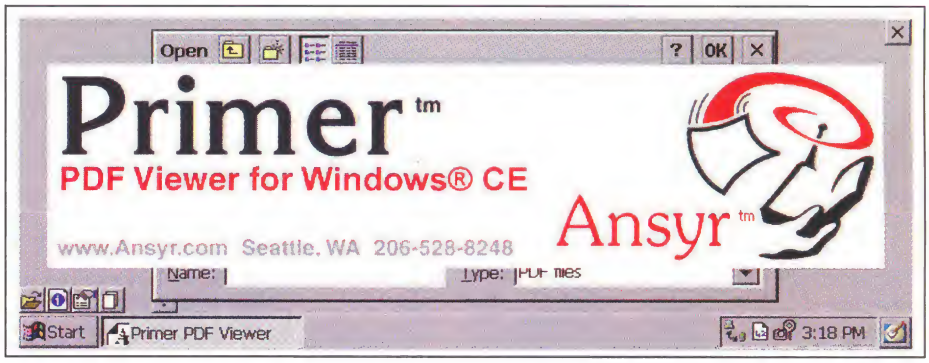
The de facto standard

Adobe's Portable Document Format (PDF) is the de facto standard for electronic document distribution worldwide. A PDF file is a read-only document that can display text and graphics. You can cut text and images from a PDF file and paste them into other documents. PDF documents are displayed on screen in a page-by-page format, similar to a printed document.

PDF is used by many public and private organizations to store documentation and other information. In fact, many PC Companion manufacturers store their user manuals and documentation in PDF format. You can go to their Web sites and download the PDF file to your desktop PC. You can view a PDF file on a desktop PC using Adobe's Acrobat Reader (www.adobe.com). But until recently there was no way to view a PDF file on a Windows CE Handheld PC or Palm-size PC. Fortunately, a company named Ansyr Technology is about to change that with the release of Primer, a PDF viewer for H/PCs and P/PCs.

Primer: a PDF viewer for Windows CE

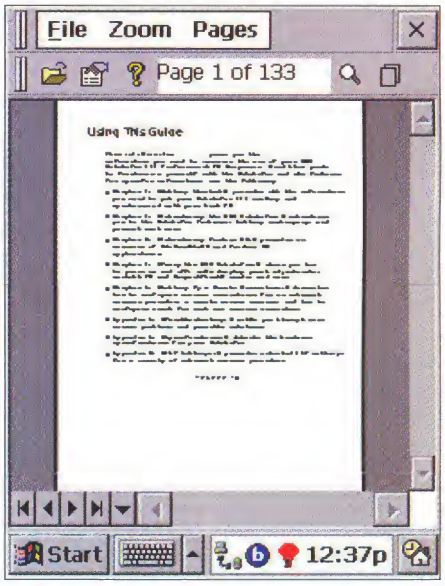
Primer offers Windows CE users capabilities similar to Acrobat Reader, providing core functions for viewing PDF documents on PC Companions. Primer supports most PDF image formats, as well as bookmarks, hyperlinks, and Table-of-Contents. Multiple levels of magnification are available, including a box zoom feature to enlarge a selected area.



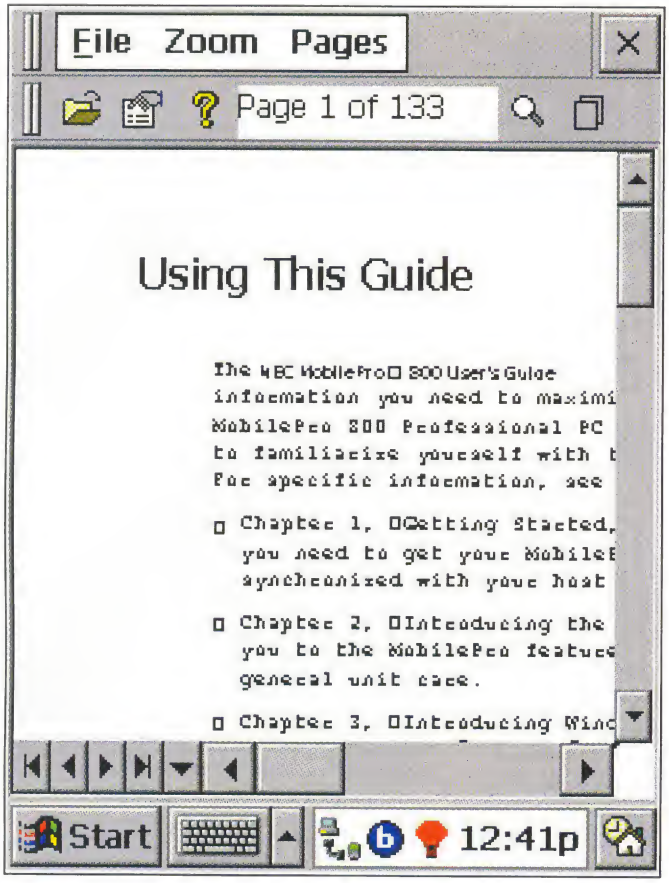
Screen 1: The opening "Splash" screen prompts you to select a PDF file for viewing.

Primer's main "Splash" screen (see Screen 1) prompts you to open a PDF file. After you select the PDF file, Primer, displays the first page of the PDF file you selected (see Screen 2). Ansyr has optimized the display to allow you to view as much of the document as possible. Scroll bars and control buttons let you move around a page, change pages, and zoom in and out on a page (see Screen 3, next page).

You can specify the zoom level (assuming you have enough RAM for program execution). Primer also supports user-defined bookmarks so you can quickly jump to specific pages in your PDFs. You can easily page up, page down or jump to the last page viewed. Another great feature is the ability to begin and continue to search for text in the PDF file. Click on the document info button to see the document title, the name of the program used to create the PDF file, the subject, author and keywords. It also tells you whether or not the document has been modified. Options menus let you select the Display Options (Display Images, Render Inline, Fill Shapes, Accurate Stretch, Extract Text Enable) and Program Options (Process Log, Progress Indicator, Show Splash) to optimize the display and function of Primer.



Screen 2: The first page of the NEC MobilePro 800 User's Guide in PDF document, displayed on a Palm-size PC. Note the up/down and left/right scroll bars and the control buttons for moving around a document.



Screen 3: Like any PDF reader, Primer lets you zoom in on a document, or out.

Using Primer

Primer can use plenty of your PC Companion's system resources. I recommend that you close all other applications. This will help Primer render the PDF pages as fast as possible. Also, you may need to increase the amount of RAM used for program execution to allow for higher zoom levels. This can be done from Start - Settings - Control Panel - System by sliding the bar to the left. Note: With the first release, you can not print PDF files.

Could be a "killer app"

In addition to this PC Companion version of Primer, versions will be available for Psion PDAs and devices using the Palm OS. Ansyr also hints at the possibility of Primer for set-top TV boxes, bar-code scanners, machine controllers, and Net appliances that use the Windows CE operating system.

I tested the beta version of Primer. The commercial version is scheduled to be released in the beginning of January and will be priced at $49.95. The commercial version will be available on Ansyr's Web site, www.ansyr.com.

Primer expands a PC Companion user's ability to carry critical information with them wherever they go. I believe this could be the killer application for Windows CE, especially for corporate users that need to access PDF formatted information. ■

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IBM's 340 MB microdrive

The IBM microdrive adds plenty of storage space to your PC Companion

BY THOMAS PELTZER, D.D.S.

In my career as a Dental Surgeon quick access to information is vital. I'm constantly reading and sending e-mail, checking information on medications, and calling in prescriptions to pharmacies. As a diversion, I test software. Because of all of this, I need to be able to transfer programs and information back and forth between computers, and take megabytes worth of files with me wherever I go.

I take the HP Jornada 680 Handheld PC Pro with me wherever I go. To augment it's limited internal memory I have a 128 MB CompactFlash Card and a newer Compact card from IBM – the microdrive.

A tiny 340 MB hard drive

IBM's microdrive looks and functions like a standard CompactFlash card. It's about the same size as a CF Card, but just a little thicker. It slips into the Type II CompactFlash+ slot found on the Jornada 680, all of the newer H/PC Pros and Palm-size PCs, and many notebook PCs. Like a CompactFlash Card it adds file storage space (170 MB and 340 MB microdrives are available). On the outside it's just like a CompactFlash Card, but on the inside it's quite different.

The photo of the microdrive next to the U.S. Quarter (next page) gives you an idea of its size. It also shows you the microdrive's insides. A standard CompactFlash Card is a solid-state device made up of a number of computer chips. The IBM microdrive is actually a miniature rotating-disk hard drive. It's a very small version of the hard drive found in your desktop computer.

IBM's microdrive slips into a PC Companion's CompactFlash slot and adds up to 340 MB of file storage space.

The microdrive draws the power it needs from the H/PC or whatever computer it's in. Power usage seemed minimal on my Jornada 680, but others have reported it a problem. Even though it's a rotating-disk drive, microdrive was very quick and quiet compare to a standard CF Card. One of the things I used it for was to transfer information back and forth between my Jornada 680 and my laptop PC. The laptop had a standard PC Card slot, about 4-times bigger than a CF slot. I slipped microdrive into a CF-to-PC Card adapter, and slipped that into the notebook's PC Card slot. It worked without any problems.

Taking whatever I want or need with me wherever I go

Microdrive lets me take the reference information I need with me, without worrying about running out of file storage space. I didn't think twice about downloading a 7 MB dictionary program. And I now keep a medical drug reference program with me wherever I go. It lists thousands of medications along with drug interactions and other information that physicians must know before they prescribe medications. Patients occasionally call me when I'm out of the office,

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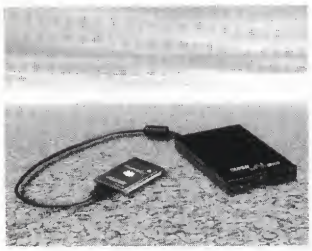

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and having this program with me wherever I am makes calling in prescriptions quick, easy and accurate. I can keep multiple copies of backup files right on the microdrive for ready access in case of emergencies.

I also like to test and play around with Windows CE programs. The large storage capacity of the microdrive lets me download whatever new program strikes my fancy. Because I install these programs on the microdrive, I have plenty of internal RAM memory to run programs. I have quite a collection of programs loaded on the microdrive, with room to spare. My daughter particularly appreciates the collection of games stored on microdrive.

Many uses for extra storage space

There are a lot of things you can do with extra file storage space. I download information from the Internet and save it on the microdrive. Then, during frequent small breaks in my normally busy routine, I'll open up Pocket Internet Explorer and catch up on my Web browsing – offline.

Travelers use programs such as Pocket Streets to find their way around unfamiliar cities. The map files used by programs like Pocket Streets can be very large. The IBM microdrive is an ideal place to store these memory hogs.

Many mobile professionals need to access company databases while out of the office. Sales, order, inventory and other information can take up a lot of storage space. The speed, cost effectiveness and inherent quality of the microdrive make it the ideal solution for this purpose.

The 340 MB microdrive is the highest-capacity storage device that is currently available for a PC Companion. But higher-capacity drives are in development, and they'll be here sooner than later. With them will come larger, more feature-rich software applications and rapidly expanding capabilities in the world of mobile computing.

The 340 MB microdrive is available in the U.S. through MobilePlanet (www.mobile planet.com) and was priced as of 11/12/99 at $489.95. For more information about the IBM microdrive, including links to authorized dealers, visit IBM's microdrive Web site at www.storage.ibm.com/hardsoft/diskdrdl/ micro/. ■

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Hailing a Taxi — and the Internet

BY RICH HALL

The next time you hail a taxi in San Francisco, keep your eyes open for a purple cab with a bright yellow "Yahoo!" emblazoned on the side. Catch it and you can cruise the streets of San Francisco and the Internet at the same time. Yahoo! and NEC's Computer Systems Division have joined forces with Ricochet Wireless Modem and Internet Service, and the Luxor Cab Company to introduce the World's first Internet taxi. NEC provides the computer, the MobilePro 800 Handheld PC Pro. Ricochet provides the wireless modem and acts as the Internet Service Provider. Yahoo! helped organize and bankroll this service and gets its name on the taxicab.

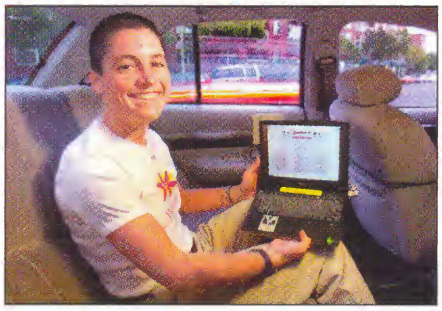
Yahoo! and NEC's Computer Systems Division have joined forces with Ricochet Wireless Modem and Internet Service, and the Luxor Cab Company to introduce the World's first Internet taxi.

No extra charge!

Call up Luxor and ask for one of the 10 Internet taxis, or simply hail one of the bright purple cabs on the street. The cab driver hands the lightweight MobilePro 800 to you in the back seat. Open Pocket Internet Explorer and Yahoo!'s Web site pops up – you're ready to go. You can access any Web site wirelessly, check out entertainment or dining options, check your e-mail, monitor stock performance and more.

The MobilePro's are powered by an AC power adapter connected to the cab's electrical system, so you don't have to worry about running out of power. In the San Francisco Bay area the Ricochet wireless service covers most of San Francisco County and parts of surrounding counties. Coverage is good within the greater San Francisco area, reaching south to the international airport and north and east to the Bay bridges.

Perhaps the best news is that there is no extra charge for this service. Pay the cab fare, tip the cabbie if you like, and that's it.



The Internet Taxi provides wireless Web browsing via the NEC MobilePro 800 H/PC Pro and the Ricochet Wireless Modem and Internet Service.

The shape of things to come

This program is part of the "Yahoo! Everywhere" program, which seeks to make Yahoo! services available in a range of traditional and non-traditional vehicles. The reason it was tested in San Francisco area is because of the ubiquitous presence of the Ricochet Network in the Bay Area, and because the Yahoo! Charity Auctions program supports various programs in San Francisco.

Luxor was showing off its Internet Taxi at an industry show. That, the fact that they have cab service in many major U.S. metropolitan areas, and the focus of the Yahoo! Everywhere program probably means that you'll be seeing more Internet taxis in the not-too-distant future. ■

The Ricochet Network

Metricom's Ricochet Network consists of a "cloud" of radio transceivers, or "microcells" deployed in clusters from one half mile to two miles apart on structures, utility or light poletops throughout San Francisco and other areas in the United States. The microcells send Radio Frequency (RF) data packets across the network to a Wired Access Point (WAP) which converts the RF packets for transmission to the Internet Protocol (IP) wired backbone to other major networks (Internet, LANs and on-line services like AOL, CompuServe). Any Ricochet modem with subscription service can access the Ricochet network while in a network-covered area.

The Ricochet Network supports Windows CE devices as well as Windows 95/98 and Mac OS portable computers. For additional information including coverage areas please visit the Ricochet Web site at www.ricochet.net/.

A Windows CE Physician's Toolbox

Our Medical Editor spotlights 15 medical applications that save a doctor's time and simplify patient care.

BY EDWARD ZABREK, M.D.

I'm a husband, a father, a writer, and last but not least, a physician. Needless to say my time is booked solid – in fact it's overbooked. Because of the importance of my first two roles, I am always looking for ways to be more efficient as a writer and a physician. This desire to be more efficient and devote more time to my family is one of the reasons I became interested in portable computers, most recently Windows CE PC Companions.

As a physician, I seek out Windows CE programs that will enhance my ability to manage my patient load and assist me in being a better doctor. Over the past 5 years I have tested and used a number of medical software applications on handhelds. Dramatic improvements are rapidly evolving in this field.

The rest of this article is a summary of my experiences with some of the currently available medical software for Windows CE PC Companions (Handheld PCs, H/PC Pros, and Palm-size PCs). I'll take a look at a medical and drug reference program, and an insurance coding application, and a complete electronic medical record (EMR) product. Although developed by different companies, these programs work well together and provide healthcare professionals with a very powerful medical tool.

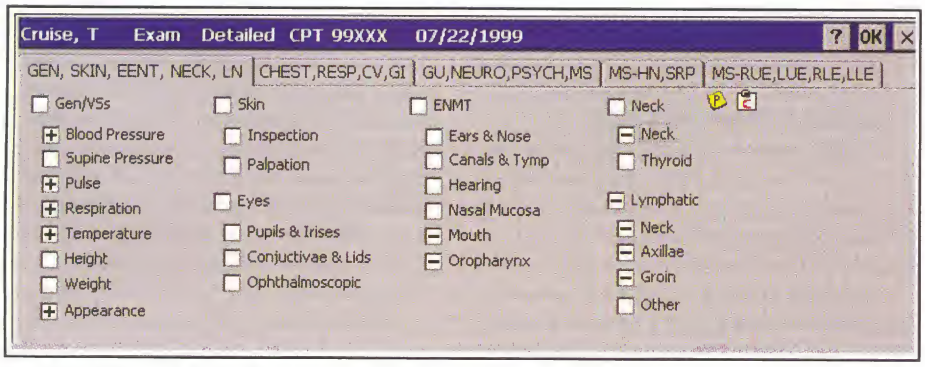
e/MD≈ — The Portable Coding Solution (H/PC only)

The U.S. government requires physicians to include standard "E&M" (Evaluation and Management) codes for procedures when billing patients and insurance companies. These are designed to provide consistency to documentation and billing procedures. They also add a lot of time to the administrative process. e/MD≈ (www.emd2.com) is a Windows CE application developed by Rensimer Enterprises, Ltd. e/MD≈ walks a physician through a series of screens where the physician enters the basic details about a procedure (Screens 1 & 2). Then it "intelligently builds" the billing code on the spot.

I have used this program over the past 5 years, and I have not found any program currently available (for any operating system) that does what e/MD≈ will do. It helps me provide more accurate billing records and claims to insurance companies, while ensuring more complete and accurate patient medical charts or records which conform to service charges. The application is flexible, allowing me to quickly search for just the right diagnosis, make changes or corrections on the fly, and to add written comments for future reference.

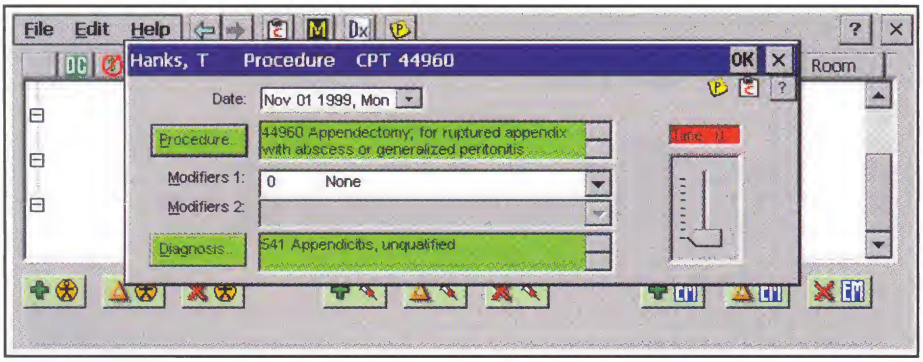
The records generated can be transferred easily. The "patient rounds" screen allows the physician to view a snapshot of his service and complete charges. Once the data has been entered a charge code is calculated and displayed at the top of the screen. Diagnoses can be searched using the ICD-9CM search engine.

I use e/MD≈ on a daily basis (see my complete review on page 23 of the Jan/Feb 99 issue of *Handheld PC Magazine*). e/MD≈ uses 5-6 MB of internal memory. In fact, most of the medical applications I use are memory intensive and you can quickly use up a big chunk of your onboard RAM with a single medical program. To help with this I have expanded the internal memory of my HP

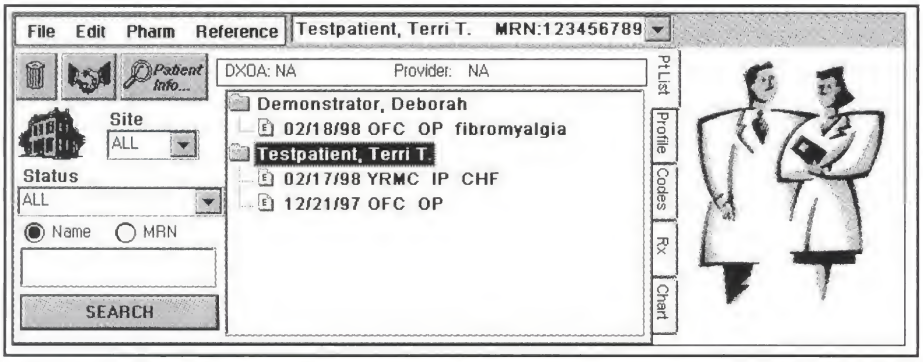


Screen 1: e/MD≈ walks a physician through a series of screens where the physician enters the basic details about a procedure.

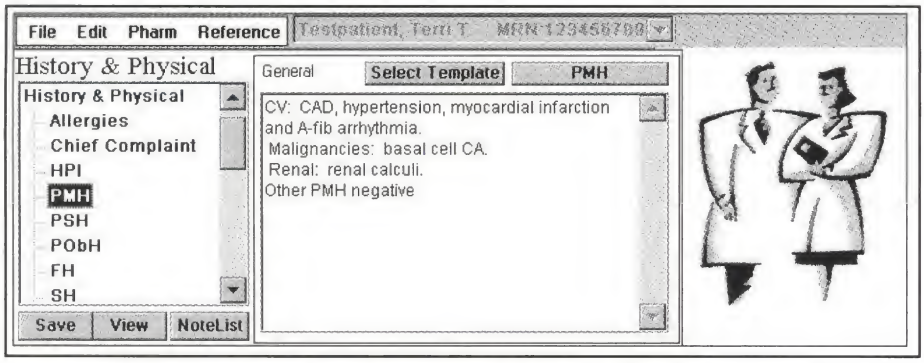
Ed is Medical Editor of Handheld PC Magazine, a practicing obstetrician-gynecologist in Houston, Texas, and chief technology correspondent for OBGYN.NET (www.obgyn.net), a Web site for obstetricians, gynecologists, and related industry persons.



Screen 2: After a physician has entered the details about a procedure e/MD≈ "intelligently builds" the billing code on the spot.



Screen 3: PocketCHART's Main screen lets the physician start a new patient chart or go to the chart of an existing patient. The physician access patient information from the tabs on the right side of the display box.



Screen 4: PocketCHART's Patient Chart tab lets the physician select templates and write complex notes without typing.

Jornada 680 Handheld PC Pro from 16 to 32 MB with an upgrade kit available from HP (www.hp.com/jornada/accessories/680/ram_upgrade.html). The problem with e/MD≈ and some other data-intensive programs is that you have to store the program in RAM. e/MD≈ is currently working on a fix that will let you load the program onto a PC or CompactFlash card.

e/MD≈ runs on H/PCs or H/PC Pros with 16 MB RAM and a screen size of 640x240. The operating system must be Windows CE 2.0 or greater. The software cost is $250 per physician license. (A real bargain!) This includes handheld PC management software that resides in a standard PC. Support is available at a cost of $50 per month for unlimited telephone support or $30 per quarter hour.

PocketChart by Physix (H/PC only)

e/MD≈ does not create a patient chart note or electronic medical record (EMR), nor does it create a prescription printout. The best program that I have seen for this is PocketChart by Physix (www.physix.com).

PocketChart offers a full-featured electronic medical record for Handheld PCs and H/PC Pros (Hitachi developed an H/PC Pro, tablet device specifically to work with PocketChart. I still prefer to use my HP Jornada 680 with this program.). The software allows physicians to collect vital patient data and access medical information at the point of care with seamless integration to the desktop (see Screens 3 & 4). PocketChart includes a formulary of more than 1,200 medications, updated short-description E/M codes and ICD-9 billing code chapters, and 11 single organ exam templates. Healthcare providers can capture and access every element of critical patient information at the point-of-care, and output legible clinical notes and prescriptions.

PocketChart can use a large amount of memory depending on the number of specialty modules you install. These modules can be installed on a CF or PCMCIA card, thereby freeing up your valuable internal RAM for applications that cannot use this option. PocketChart can support optimal decision making at the point-of-care, wherever that happens to be. The final documentation can be printed directly to your printer or uploaded to your desktop computer for printing later.

The package includes templates, software, care plan and template editor. Add $149 for annual support and upgrade. PocketChart sells for $2,346 and can be used with an H/PC or H/PC Pro. A demo version and more information is available from PHYSIX Inc; www.physix.com; E-mail: sales@physix.com; Phone: 800-749-2585 or 713-797-1199.

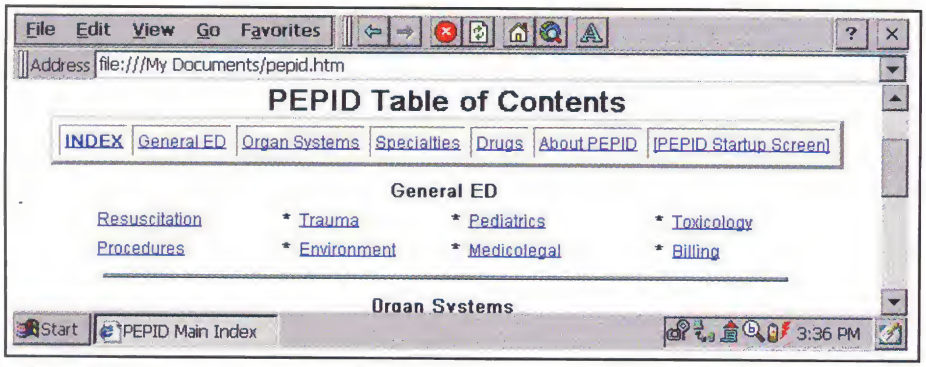
Will it work on Palm-size PCs?

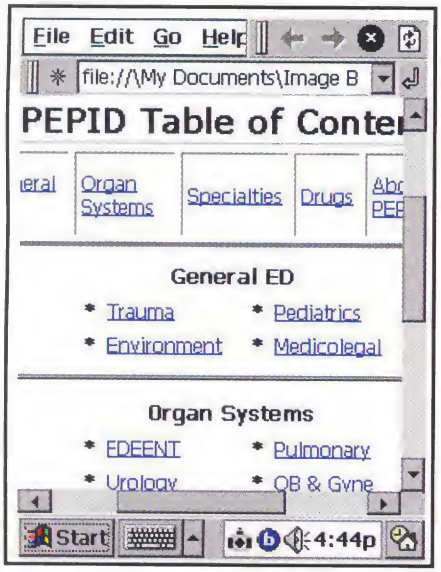
The majority of physicians I have spoken with prefer the smaller form factor of the Palm-size PC and Palm Pilot. Unfortunately, e/MD≈ and PocketCHART were developed for the Handheld PC and have not yet been re-designed for the Palm-size PC. Fortunately, other programs are available for the Palm-size PC.

PEPID 2000 (H/PC & P/PC)

One program, available for both H/PCs and Palm-size PCs, is PEPID 2000 (www.pepid.com). PEPID is an incredibly potent "browser-based" medical reference program. PEPID gives healthcare providers a library of essentials for virtually all medical and drug problems (including drug interactions). It includes complete monographs for over 1,000 commonly prescribed drugs and vitamins, and on your P/PC, this powerhouse of data will fit in your top lab coat pocket.

PEPID 2000 is well organized by specialty, and easy to navigate using the "Index" word search, or through the hyper-





Screens 5 & 6: PEPID 2000 is a browser-based medical reference program that gives healthcare providers a library of essentials for virtually all medical and drug problems (including drug interactions). Navigate using the "Index" word search, or through the hypertext "Table of Contents."

text "Table of Contents". Once you have completed your search, the body of the document contains further references with hypertext that are quickly and easily accessed (see Screens 5 & 6, next page).

If you plan on using it on a P/PC, you must install a browser on your device. PEPID recommends Pocket Browser, a $20.00 shareware program created by Conduits (www.conduits.com/ce/browser). I must agree. This is an easily customizable program that works extremely well with this application.

PEPID was written by over 40 physicians and is designed for Emergency & Primary Care Physicians, Residents, Interns and Students. Suggested retail price is $295.00. For more information contact PEPID Inc; www.pepid.com; E-mail: info@pepid.com; Phone: 888-321-STAT.

PocketCode (P/PC only)

For billing and accurate coding on your P/PC, I recommend PocketCode by Dynamedix (www.dynamedix.com). PocketCode is a portable coding tool for healthcare providers. As with e/MD≈, PocketCode is designed to eliminate coding errors and reduce the denial rate of claims at the point of patient encounter, resulting in improved practice profitability, efficiency and compliance with federal and local coding regulations.

PocketCode works extremely well on the small form factor of the P/PC. It uses about 350K of internal RAM, with the majority of (database) information loading to an external CF card. PocketCode synchronizes with a desktop PC version of the program (both versions included in the package). I have used this program on a Cassiopeia E-105 and a Compaq Aero 2180 and it works flawlessly on both devices. Be sure to follow the manual very closely when setting up PocketCode on your P/PC. It is not as straightforward as it may appear. If you have difficulties, Dynamedix has an excellent, friendly technical support department. They will be there for you (during their regular business hours) and get you and keep you up and running.

Both PEPID 2000 and PocketCode can be installed on an external PC or CompactFlash card. I am currently using the Cassiopeia E-105 Palm-size PC with 32 MB of internal RAM. The brilliant color screen of the Casio E-105 is ideal for a weary-eyed doctor like myself. (Note: PocketCode is currently partnered with Casio, and is co-marketing the Cassiopeia E-100/105 with Dynamedix.)

I use a 340 MB IBM microdrive CompactFlash II plus (CF+) card for file storage on my Palm-size PC. I use a 440 MB SanDisk Type II PC Card and a 96 MB SanDisk CompactFlash Card with my HP Jornada 680 Handheld PC Pro. With all of this external storage memory I feel I'm in pretty good shape. But you can never have too much file storage space. SanDisk will be shipping 300 MB CF Cards and 1.2 GB (1,200 MB) Type II PC Cards next year.

Windows CE to the healthcare forefront

Over the past year, there has been a dramatic maturation of hardware and software programs available for both Handheld PCs and Palm-size PCs. Recent software enhancements have made the smaller P/PC more

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– Win 2000/NT/98 – MSMQ

☑ **Wireless Applications**
– BellSouth RAM Mobitex – ARDIS
– 2.4 GigHz WAN – CDPD
– NexTel, CDMA, ReFlex – GSM
– Wireless Application Protocol (WAP)

Healthcare Products and Services for Windows CE

The following software and hardware products and services round out the Windows CE medical roundup list. I have not had an opportunity to review or evaluate these programs.

AllScripts (www.allscripts.com/) Medication management software that provides physicians with current information on approved formularies, potential drug interactions and drug utilization at the point of prescribing, thereby reducing the need for time consuming follow-up, increasing quality and reducing costs associated with providing prescription benefits.

Practical Portable (www.masterchart.com/) Offers a range of medical software that allow the mobile clinician to access clinical information and to perform key tasks related to patient care. Works with a range of Palm-size PCs.

Patient Care Technologies Inc. (www.ptct.com/) provides a point-of-care solution for home care clinicians based on Windows CE. Clinicians carry a CE device right into the home and use it as care is delivered to document their work.

PPARIS (www.parkstonemed.com) The Physician Prescription and Referral Information Server (PPARIS) system serves a variety of participants in the healthcare industry, including physicians, patients, insurance companies, pharmaceutical companies, and pharmacy benefit managers. The information is provided to the physician in the form of 'modules' that run on a Palm-size PC and interface with Microsoft SQL Server 7.0.

WiiN-PAD (www.dg.com/) a wireless, pen-entry Handheld PC computer tailored for doctors, nurses, administrators, and other healthcare professionals. The WiiN-PAD handheld computer complements Data General's healthcare solutions by providing a robust client device for mobile computing.

DoseAssist (www.SimkinRx.com) based on Simkin's drug therapy and dosing software. DoseAssist comes standard with Renal Dosing and Once-Daily Aminoglycoside Dosing modules. Optional dosing modules include Heparin Weight-Based Dosing and Antibiotic Kinetic Dosing.

MediHPC (www.cam.com/windowsce.html) a Meditech host system for Windows CE H/PCs that features full Data General 5220/5222 and Esprit 105C/125C emulation. Users can copy and paste between host sessions and Windows CE documents.

Medical products from K2 Consultants

(www.skyscape.com/k2new/nindex.html)

The following products are available from K2 Consultants, Inc. They are good and useful products, but be forewarned! Tech support (even through e-mail) has been extremely difficult to get.

Archimedes — The Intelligent Calculator – an indispensable medical calculator with nearly 70 pre-programmed, structured formulas covering a wide range of topics in medicine, accounting and finance.

Griffith's 5-Minute Clinical Consult – a quick reference to any number of over 1000 diseases. Includes basics, diagnosis, follow-up, medications and treatment options. A must-have for both obscure and common diseases.

Lexi-Comp's Drug Information Handbook – a complete database of over 5200 drugs with both generic and brand names. The information for each drug is complete with important information on use, dosage, contraindications, interactions, pregnancy implications, nursing instructions, therapeutic category, etc.

Outlines in Clinical Medicine – a comprehensive and up-to-date medical reference with over 700 separate outlines covering general internal medicine and related fields. Includes succinct coverage of medical topics including diagnostics and therapeutics.

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functional than ever before. Future developments by Learnout and Hauspie and Microsoft will give your P/PC speech-to-text capability. Medical photographic images (as well as family pix) can be shared using Sierra Imaging's CE Image 2000 (www.sierraimaging.com). And you can even leave your digital camera at home with the Digital Camera Card Casio is marketing for its E-105 Palm-size PC. These incredible current and future abilities are destined to topple the Palm Pilot's dominance in the Palm PC wars and bring Windows CE to the forefront of medical informatics and patient management. ■

Monitoring Asthma: A PC Card Spirometer

BY KIRK COWGILL

A year ago I wrote an article describing how I used an NEC MobilePro 750c Handheld PC in the 7th grade to stay organized, do Internet research for homework assignments, and play some games in my spare time (see Sep/Oct 98, page 20). Well, I'm in the 2nd half of 9th grade now and I now use a MobilePro 770 to make school easier and my life more fun. But I've discovered another use for it – health. You see, I have asthma and I've just discovered the coolest device for my H/PC. It's called "SpiroCard."

A portable PC Card "spirometer"

A spirometer is a device used to assess a person's ability to breathe. The Spirometer performs a Pulmonary Function Test (PFT). This is used to measure the airflow rate and the volume of air a patient has with their lungs. A graphic representation of these measurements is called a "spirogram." These tests are used with people with respiratory problems to monitor the condition of the lungs.

A spirometer can be helpful in many ways. It can identify a small airway disease, assist in convincing patients to quit smoking, identify pulmonary disease symptoms and the degree of disability, and assist in the management of patients with lung disease.

SpiroCard is the first PC Card spirometer. It slips into the PC Card slot of an H/PC (or notebook PC) and turns the device into a portable spirometer.

Installing and using SpiroCard

The SpiroCard comes with user-installable software. Put the floppy disk in your desktop PC and run the install program. The next time you connect and synchronize your H/PC with your desktop PC, a program called Pocket Medic is installed on the H/PC (PC version also available). After that, you place the Spirometer card into the PC card slot and attach the tiny air hose and the mouthpiece to the card. You're ready to go.

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❑ I am a reseller

Run Pocket Medic on your H/PC and start up a new patient profile. Enter in all the information they ask for about you. While I did this, I noticed it also asked for my account # and ID #. This is probably used to identify a patient as the card was designed for use by healthcare professionals.

After doing all this, a new window appeared that showed all the tests that I could perform with tabs leading to Session comments, Calibration Check, and Session Demographics. The different tests you can perform are as follows:

- A Pre FVC (forced vital capacity) which measures the volume and the airflow a patient can exhale once the lungs are filled with the maximum amount of air.
- A Pre MVV (maximum voluntary ventilation) where Pocket Medic takes the maximum volume of air a patient can exhale in a 12-second period.
- A Pre SVC (slow vital capacity) where the volume of air that a patient can slowly exhale after filling their lungs with the most air they can. After these three there are the post tests that have the same name, allowing you to see the progress a patient has made over a certain period.

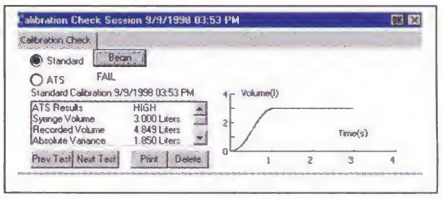
When you select any of these tests, another window opens up and you must enter the identifying number of the mouthpiece you use as well as the physician/tech administrating the test and the room temperature. After hitting "OK," you are presented with two circles, one white, and one black, and they alternate colors. This just shows that the Spirometer is measuring the air pressure in the air tube and outside in the room so you will have more accurate results. Once the system has determined the pressure inside and out, you begin the procedure according to the test taken. There then is a chart showing how well you preformed. You may do the Standard test (see Screen 1) where only one reading is taken, or the "ATS" test where three tests are taken and averaged to meet the ATS guidelines of calibration. It seems more accurate to do the ATS test to judge the condition of your lungs.

SpiroCard does not replace your physician

After completing these tests, you have the option to print the results out so you can send them to a doctor. This is an important point. The SpiroCard may save you a little money taking tests, but you still need a doctor to read most of them. I can only make sense of one of the tests. In fact, the SpiroCard manual assumes that the card is being used by a healthcare professional.

The suggested retail price for the SpiroCard is $695. It works with H/PCs, H/PC Pros, and notebook PCs running the Windows 95/98 OS if they have a PC Card slot. For more information, contact QRS: Phone: 800-465-8408; E-mail: sales@qrssys.com; Web: www.qrssys.com. ■

The QRS SpiroCard turns an H/PC into a portable spirometer that can assess a person's ability to breathe.

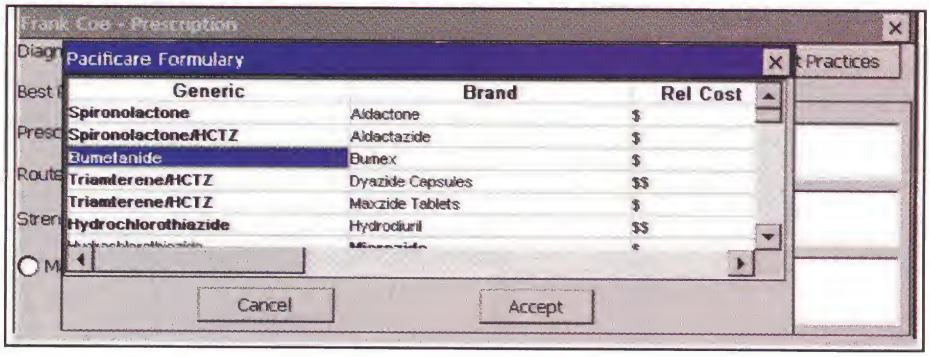


Screen 1: After calibrating the SpiroCard and selecting the desired test, tap the Begin button and breath into the mouthpiece.

Kirk Cowgill completed the 8th grade at Peterson Middle School with the aid of his new NEC MobilePro 770 and is now a 9th grade student. During much of his time he enjoys various computer games like StarCraft and Need for Speed 4. He plays piano, clarinet, and oboe and loves Classical music.

Powerful, Professional Databases for Windows CE

EDITOR'S NOTE: In the first part of this series on databases, David provided an overview of the various database options available for Windows CE. In that article it was indicated that the second part would provide more detail about third-party database programs and the third part would cover the "mini" versions of the powerful enterprise database solutions. Because of the general focus of the Jan/Feb issue, we decided to reverse the order of the second and third installments.



Screens 1 & 2: ReadyScript is a custom prescription-writing application for physicians, developed using a standard database engine.

BY DAVID SHIER

Two of the largest database vendors, Oracle (www.oracle.com/olite) and Sybase (www.sybase.com/mec), have produced Windows CE versions of their powerful database engines. A database engine is a special type of software that allows programmers to design complex data management applications without having to deal with the details of how to manipulate the data itself. These database engines are not accessible to the end user directly, but are simply building blocks for programmers to use in designing application programs.

Connecting to Host Databases

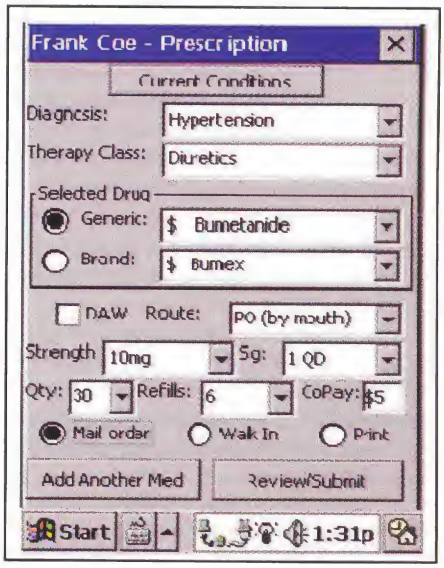
In virtually all applications for mobile databases, synchronizing data with a central database is a key requirement. However, the level of connectivity needed varies greatly.

At one end of the spectrum are applications that require nearly constant connection to a host database. An example of this type of application might be an industrial inventory control program. As a user receives parts at the loading dock, the central database is queried to determine the location within the warehouse to store the parts, and the fact that the parts are available is transmitted to the database. For Windows CE handheld PCs a wireless network makes such an application practical. These applications do not need a lot of logic built-into the handheld application because they can rely on the more powerful host computers.

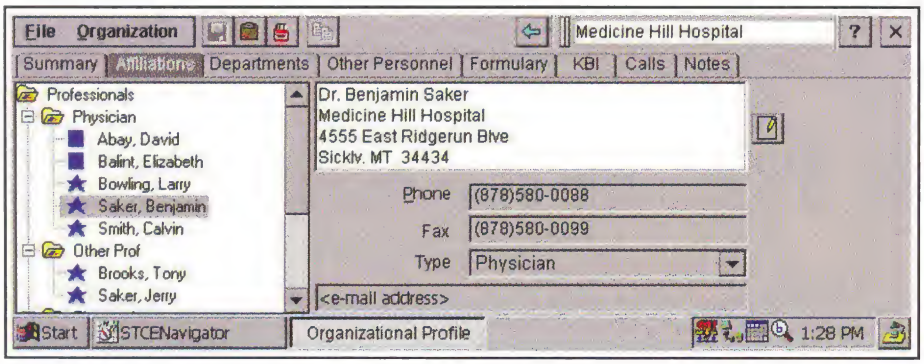
At the opposite end of the connectivity spectrum are applications that must stand on their own except for occasional synchronization. Common applications of this form are field sales force automation programs. The customer list and available products are loaded onto the handheld at the start of the day, and the user works in a "stand-alone" mode entering new orders and updating customer information throughout the day. Then, at the end of the day, the user connects to the central database again and the new information is exchanged.

Of course there are numerous examples of programs that fill the space between these two extremes. My company is currently supporting such a program that fits in the middle of the connectivity range. The application is to allow physicians to write prescriptions electronically. We selected Windows CE because of the wide range of hardware that the operating system supports. Highly mobile doctors can use a Palm-size PC, while those that prefer a keyboard can use a Handheld PC, or even a larger machine.

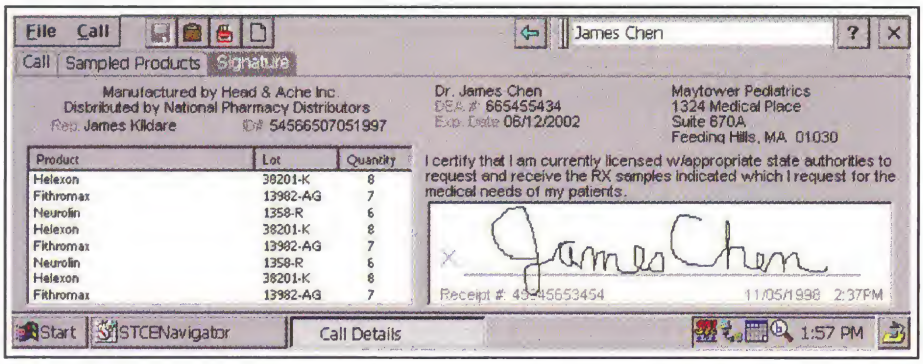
The program, called ReadyScript, needed to provide considerably more functionality than competing prescription writers. For example, we needed to supply the doctors with the formularies (lists of medications covered by an insurance plan) for multiple



David Shier is the President of Shier Systems & Software, Inc. A former software engineer and Director of Marketing & Sales had specialized for over twenty years on electronic test equipment for the aerospace industry. He is currently authoring a book on automated wire harness testing for aerospace. David started Shier Systems in 1994 to focus on providing ultra-mobile computing and communications solutions including Windows CE based hardware and software. Shier can be contacted via the company Web site at www.shier.com or by e-mail at shier@shier.com



Screen 3: PhasTrak's Organizational Profile organizes contact information about physicians, hospitals, medical groups and more.



Screen 4: PhasTrak maintains a log of sample products provided to physicians with a screen displaying the samples received and standard regulatory information.

insurance companies (see Screens 1 & 2). We also wanted to supply current clinical guidelines for certain diagnoses. This was an important feature since most physicians are bombarded with information. By providing access to relevant information at the time the doctor needs it, the patients can greatly benefit.

The problem is, there is far more information in the ReadyScript database than can possibly be stored on a handheld computer. While a constant connection would solve the data issue, it would severely limit the mobility of the ReadyScript tool. This is because we didn't want to connect the handheld computer with a cable, and a constant connection using wireless networks would be far too demanding on the batteries. Instead, we settled on a design that used a database local to the handheld that contained the information most likely to be needed by the user, and a wireless network to retrieve any information that was not expected to be needed. The wireless network is also used to transmit the prescriptions when written. The major advantage of this architecture is that the handheld can operate in a "stand-alone" environment when the wireless network connection is not available.

Regardless of the level of connectivity required, a common feature of handheld databases is "synchronization". In synchronization, the data in the tables residing on the handheld is merged with the data in the host database. This function can be quite complex since some data may have been changed in both locations since the last synchronization session, and there needs to be various rules regarding data accuracy.

For example, in the ReadyScript system, a single physician may enter a prescription for a patient named "John Smith" born on May 28th, 1951, however we have another John Smith in the central database born on the same date. Is this the same patient or just a coincidence? Using a phone number, address, or social security number could resolve the conflict, but what if the patient has moved? Then the name and date of birth would be the same but the address and phone number would have changed. What if the social security number was mistyped? These are issued that are application specific, but representative of the types of problems that occur in distributed database applications.

Such issues are best handled by developing synchronization rules at the host database. In this case, we decided that if everything matched but a single field, then the patient was the same. However, special consideration had to be given to the fact that a father and son may have the same address and phone number, but of course, have different dates of birth, and the son might not have his own social security number. Since these issues are handled at the host database, it is a simple matter to inform the user when a data conflict exists.

Advantage of Relational Databases

If you are familiar with programming, then you might conclude that the applications we noted could be implemented without the special database engines. This is true, but there are very sound reasons to use Oracle or Sybase. One obvious reason is the fact that maintaining data integrity as noted above, is much easier with the programming tools provided by a database. Another advantage is that that the database engines are designed to allow related data to be found very quickly.

In our ReadyScript example, the doctor needs to be presented with a list of drugs that fit the diagnosis, and are contained on the formulary of the patient's insurance plan. Using a database allows us to assign complex "associations" that make such a query relatively trivial.

Another advantage of using a database engine is that data can be checked for "relational integrity." This means that information entered by the user can be verified to be free from logical errors without complex programming by the developer. For example, if the database contains a table of the insurance plans that are supported by each doctor, then the program can reject entries for patients that don't match a valid insurance company/doctor combination. (In this case, the patient would need to be entered as a "fee-for-service" patient so that everyone is aware of the potential cost to the patient.

Using a Handheld as a Laptop Replacement

The company IMS Health Strategic Technologies (www.imshealth.com/) is a leading supplier of sales force automation tools for the pharmaceutical industry with approximately tens of thousands of users of their laptop computer-based software.

Of course regular readers of *Handheld PC Magazine* immediately see the value in porting such an application to Windows CE. Not only are handheld PCs much more portable, their extended battery life and instant on features are of great advantage to the mobile salesperson.

IMS Health elected to write the handheld application, called PhasTrak, from scratch, rather than modify their existing

Programming Issues

Programmers familiar with databases may be interested in knowing some of the limitations of the "light" versions of the database engines available for Windows CE. Both Sybase and Oracle point out that the database engines are customized at compile time to include only the features that your application uses. This can make the database engine as small as 50KB or as large as 750K (still extremely small.) Obviously, even at their largest size, there has to be features missing. Sybase indicates the following are not supported by their UltraLite version of Adaptive Server Anywhere:

Schema Modification – To modify the schema (database layout) you must build a new version of your application.

System table access – You can't access the system tables because they don't exist in UltraLite.

Dynamic embedded SQL – All SQL (the standard programming language for databases) must be static. That is because the SQL statements get converted to C/C++ code that is compiled as part of your application.

System functions – This includes Adaptive Server Anywhere property functions.

Both Oracle and Sybase offer free downloads of their Windows CE database development tools on their respective web sites.

Windows 95 application. Of course they leveraged their existing engineering and design in creating the new application. This was made possible since programming for Windows CE uses the same tools and methods as programming for its larger Windows siblings, and by using Sybase's SQL Anyware Mobile database engine.

The IMS Health application is extremely impressive in its complexity. The contact management section (see Screen 3) provides extensive information about physicians, hospitals, medical groups, and even their golf partners!

In taking advantage of the Sybase relational database on the handheld, PhasTrak allows the user to rapidly switch between screens of affiliated people and organizations.

According to John Moran, Director of Product Marketing at IMS Health, Sybase provided the technical support needed to assure that current users of their laptop application would find the handheld application familiar. To accomplish this, the engineers at IMS Health needed to use some custom designed ActiveX controls as well. Looking at the sample screens for the program, you may notice a more complex user interface than is typically available in Windows CE applications.

Capturing Critical Data

One of the most important features of PhasTrak is the logging of sample products provided to physicians. The pharmaceuticals sales representative can provide the physicians with free samples of drugs. However, because these are "controlled substances" there are clear regulations about documenting the disposition of any samples. The doctors must sign an acknowledgment of the transaction and this documentation must be made available for inspection by the FDA upon request. PhasTrak provides the doctor with a screen displaying the samples received and standard regulatory information (see Screen 4).

The doctor signs for the samples on the H/PC screen and this information gets uploaded to the master database for archival purposes. Jay Duff, Vice President of Product Portfolio Management for IMS Health, explained that the need to present all the information on this screen to the physician at the time they sign for the samples is what dictated the use of the H/PC instead of the smaller Palm-Size PC.

What Does All This Mean to You?

Looking at the sample applications highlighted here, it becomes apparent that the old "conventional wisdom" that Windows CE is not powerful enough just isn't true any longer for almost any mobile application you can imagine. Using Visual C++, ActiveX controls and a database engine from Oracle or Sybase, extremely complex applications can be designed for the current crop of handheld computers.

It's important to remember that, not only are the screens of these machines smaller, requiring different screen layouts than used for laptop or desktop PCs, but Windows CE is a completely different operating system than Windows 95/98/NT. This means that a program written for "standard" Windows may need significant modifications in order to run under Windows CE. Because both screen designs and the underlying code require modifications, it is often easier to simply start over on the handheld design, but using the skills and knowledge gained from the earlier project.

So what we've shown here is that, if you have a database application to be ported to Windows CE, most likely it can be done. The bad news is that it will require software engineering and depending on the complexity, may be considered a major project with cost and time considerations that could be prohibitive if you need custom development.

On the other hand, a number of commercial desktop applications, such as Timeline (project management software) include a database engine imbedded in the product. If the market demand is there, we may start seeing similarly complex applications for Windows CE in the near future. ■

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$19.99; Use With: H/PC; P/PC; H/PC Pro; STYLUSplus.com; www.stylusplus.com; E-mail: sales@stylusplus.com; Phone: 877-7STYLUS

Connectivity

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$499; Addonics Technologies; www.addonics.com; E-mail: Atc@addonics.com; Phone: 510-438-6530

Services

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Mobile Almanac

The Mobile Almanac is a comprehensive, platform-independent, online resource for those interested in mobile computing products and services, including those related to the Windows CE operating system. The Mobile Almanac includes information on 3000+ commercial products and services and contact information for 1100+ companies that provide those products and services. The company contact information and product entries have confirmation dates so you know when the information was entered or reconfirmed. Entries are updated on an ongoing basis.

$Free; The Mobile Almanac; www.mobile-almanac.com

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Calculator

GraphIt

A fully-functional graphing calculator for Windows CE 2.0 or better PC Companions. GraphIt supports standard scientific calculator functions, including absolute value, logn, and a wide range of trigonometric functions, including hyperbolic sine, cosine, and tangent! In addition to graphing any expression you can throw at it, it can also plot parametric curves (fun!), functions translated to the y-axis (i.e. functions in the form x=f(y)), and that's not all! It also includes the popular Polynomial Calculator, capable of performing lightning-fast operations on polynomials with any number of variables.

Price: $20; Use with: H/PC, H/PC Pro, P/PC; Demo available; http://home.att.net/~christopher.jansen/graphit_main.htm; E-mail: christopher.jansen@worldnet.att.net

JCALC

A scientific calculator that supports regular math functions as well as SINE, COS, exponents, factorials, e, pi, stacking, loading and saving data to files, variables, etc.

Freeware; Use with: H/PC, H/PC Pro, P/PC; Demo; AeonigmaSoft; http://julio.ortiz.home.mindspring.com; E-mail: jortiz@early.com

Resistor Calc

A simple Visual Basic program to calculate resistance values. VB RunTime files included.

Freeware; Use with: H/PC Pro; Demo available; http://home.pacific.net.sg/~siongwei/windowsce.htm

Communications

JETCET CONNECT

A serial to parallel converter that establishes a reliable connection from your Windows CE based handheld PC to your printer's industry standard parallel port. Bundled with a copy of JETCET PRINT, JETCET CONNECT provides an out-of-the box working solution that will have you printing in three easy steps.

$n.a.; Use With: H/PC, H/PC Pro; WESTTEK; www.westtek.com; E-mail: sales@westtek.com; Phone: 425-861-8271

Salutation Lite

The Salutation Consortium offers software that gives devices, applications and services, which meet in a communication setting, the ability to find out about each other — an electronic salutation, allowing them to communicate with one another. The Salutation Consortium is now offering the Salutation Lite, a discovery protocol for handheld computers using the WindowsCE and PalmOS operating systems.

Freeware; Use with: H/PC, H/PC Pro, P/PC; Salutation Consortium; www.salutation.org; E-mail: director@salutation.org; Phone: 770-642-8565

Database

CEDBView

This is a utility for viewing the contents of the databases on your Windows CE device. It also allows you to delete stranded databases, since you can't delete them through the Explorer.

Freeware; Use with: H/PC (SH3 only); Download or demo available; www.transport.com/~ddrew/productindex.htm

DBCE

DBCE lets you create/remove new tables, indices, add/remove records on your P/PC. Data can be accessed under both "Grid View" and "Record View" modes. You can search for data using one of three different search modes: "Whole Field", "Start of Field", and "Any Part of Field". The Professional Edition of DBCE includes a desktop application called DBCEUtils that allows you to transfer Microsoft Access tables to/from the device. Using DBCEUtils, you can export tables from Access to the mobil device, add/edit/update the tables, and import them back to Access any time.

$34.00; Use With: P/PC; CEStation; www.cestation.com

DBCleaner

DBCleaner lists all the existing databases in the device and facilitates the user to delete the undesired.

Freeware; Use With: H/PC; ITIL; www.itil.com; E-mail: palmix@itil.com; Phone: 91 11 695 900 Ext. 344

MusicWise Music Organizer

MusicWise, the personal music organizer software that allows mobile users to keep track of their music inventory by maintaining a database of CDs, LPs, cassettes or any other music media they own. MusicWise synchronizes with the desktop PC version of the same application and can give the user online and hardcopy reports of his entire collection or subsets of his collection.

$49.99; Use With: P/PC; Wise Innovations Ltd; www.wiseinnovations.com; E-mail: information@wiseinnovations.com; Phone: 847-670-8260

PocketBase

Create customized databases on your CE platform.

$29.00; Use With: H/PC; Pocket Technologies; www.pocket-ce.com; E-mail: info@pocket-ce.com; Phone: 650-320-8449

Developer/programming

AllBarCE

No more mess on your desktop; with AllBarCE you will have all your favorite programs at your hand. You can also display the date in this bar.

$9; Use With: H/PC; Allware; www.allware.com.mx; E-mail: Sysop@AllWare.com.mx; Phone: 5687 55 43

deviceFT

Lets you incorporate fault tolerance features into applications running in consumer, commercial and industrial electronics products. With Intrinsyc deviceFT, application faults that can't be directly resolved by hardware techniques or the operating system are quickly detected and handled before they become a problem.

$n.a.; Use With: H/PC; P/PC; H/PC Pro; Intrinsyc; www.intrinsyc.com; E-mail: info@intrinsyc.com; Phone: 800 474-7644

deviceRMS Web Suite

Intrinsyc deviceRMS (previously RainbowRMS) a software technology specifically designed to remotely manage consumer, commercial and industrial electronics products. With Intrinsyc deviceRMS, you can remotely configure, manage and monitor a distributed network of devices using a standard web browser.

$n.a.; Use With: H/PC; P/PC; H/PC Pro; Intrinsyc; www.intrinsyc.com; E-mail: info@intrinsyc.com; Phone: 800 474-7644

deviceWEB

Intrinsyc deviceWEB (previously known as Rainbow) is a Windows CE's software solution designed to turn any consumer, commercial and industrial electronics device into a standard Internet web server. Any deviceWEB-equipped product immediately becomes visible on the Internet or Intranet via the most universal of user interfaces — a standard web browser.

$n.a.; Use With: H/PC; P/PC; H/PC Pro; Intrinsyc; www.intrinsyc.com; E-mail: info@intrinsyc.com; Phone: 800 474-7644

deviceOPC

Intrinsyc deviceOPC is a toolkit specifically designed to create OPC servers for use in a wide variety of applications running on OPC-compliant consumer, commercial, and industrial products. With Intrinsyc deviceOPC, developers, systems integrators and original equipment manufacturers can minimize the programming work required to develop OPC-compliant data access and event servers for Windows CE devices . And because they're based on a powerful standard, applications based on deviceOPC can link to higher levels in the enterprise — to the desktop and all the way to the enterprise itself.

$n.a.; Use With: H/PC; P/PC; H/PC Pro; Intrinsyc; www.intrinsyc.com; E-mail: info@intrinsyc.com; Phone: 800 474-7644

PocketC Keyboard

A Palm-size PC keypad utility you can use to input PocketC functions and constants, enter characters, and built simple GUIs.

Freeware; Use with: P/PC; Download or demo available; Orbworks; www.orbworks.com

PrinterCE Standard Edition

PrinterCE provides printing capabilities for VBCE, NS Basic and MFC/CE developers. PrinterCE offers a path to overcoming the complexities and limitations of programming printing functions into Windows CE applications, allowing simple yet sophisticated printed output for HPC/Pro, HPC and P/PC devices.

$19.95-$49.95; Use With: H/PC; P/PC; H/PC Pro; FieldSoftware; www.fieldsoftware.com; E-mail: timfield@fieldsoftware.com; Phone: 530-644-2566

The Big Red Toolbox

A set of extensions to the NS Basic/CE development environment. Display HTML documents with the HTML control; Show JPEGs, bitmaps and more with the improved PictureBox control; Use completely new Treeview and ListView controls ; Add sliders, trackbars and progress indicators; Make powerful dialog boxes easily with new Dialogbox tool.; Create and edit Pocket Word files with RichText control; Schedule events with the new Timer control; Much more. To promote an independent development environment for Windows CE, the tools in The Big Red Toolbox have been donated by their creators.

Freeware; Use With: H/PC; P/PC; H/PC Pro; NS Basic Corporation; www.nsbasic.com/; E-mail: sales@nsbasic.com; Phone: 416 264-5999

Visual Application Builder

PCForm (the Visual Application Builder) is a Visual front end for OrbWorks PocketC. The application is designed visually using the stylus to draw controls on the screen. The properties for the controls can be amended and code entered to handle control events.

Shareware $25; Use with H/PC, H/PC Pro, P/PC; Download or demo; Network Dynamics; www.networkdynamics.co.uk; E-mail: info@networkdynamics.co.uk; Phone: +44 (0) 1892 540055; Fax: +44 (0) 1892 540111

Finance

HPC/PPC Loan Manager

PPC Loan Manager for Windows CE is an easy to use program for you to keep track of multiple loans for all your customers or properties. It's also a useful tool to calculate monthly payments when you need a loan for your car, house or business. This program enables you to calculate amortization schedules. It also displays paid amount and remain amount, total interest and principle.

$14.95; Use With: H/PC; P/PC; Boma Software; www.boma-electronic.com/wince E-mail: info@boma-electronic.com; Phone: 661-420-6038

METAtimeCE

A simple, intuitive, easy to use time tracking application. Features include: (i) All input fields are designed as drop-down lists (ii) All activities can be related to projects and customers (iii) It's possible to choose contact items as customers (iv) Filter for projects and project time (v) Import and export from/to text files.

$19.95; Use with: H/PC; P/PC; Demo or download available; META TOOLS GmbH; www.metatools.de/frames/METAtimeCE.htm

Games/Entertainment

AlfaBit Games

Archer – Help the "Archer" shoot randomly generated balloons. Classical Balls – Move the blinking piece until you have five consecutive pieces. Puzzle – Electronic version of the old puzzle game with 15 movable pieces in a 4x4 grid.

$7 (each) shareware; Use with: P/PC; Download or demo available; Contact: AlfaBit Software; www.alfabit.net/; E-mail: support@alfabit.net; Phone: 604-306-9504; Fax: 604-520-9680

Bubblet

A puzzle game for Windows CE devices. Match similar bubbles together in order to burst them from the board. The more bubbles you burst at once, the more points you receive.

$12.00; Use With: H/PC; P/PC; CE Station; www.cestation.com

CatchMe

Steal a few fun filled moments with CatchMe, a card-swapping game. CatchMe is designed to help you increase your attention span.

Freeware; Use With: H/PC; ITIL; www.itil.com; E-mail: palmix@itil.com; Phone: 91 11 695 900 Ext. 344

CB64CE

A Commodore 64 emulator for Windows CE machines (only ported to the HP Jornada 820's StrongARM processor as of 11/2/99). CB64CE can run both PRG (program) and CRT (cartridge) files. Comes with an installation wizard, FAQ, and full keyboard/joystick emulation.

Freeware; Use with: H/PC Pro (HP Jornada 820 only); Download or demo available; Come Back 64; www.emutech2000.com/cb64/intro.html

CEBall

A 'brick' game for Windows CE, designed with beautiful colors and exciting sound effects. Arrow key of keyboard and Cursor Button of CASIO's E-100 series as well as stylus pen can be used in order to control the game.

$24.95; Use With: H/PC; P/PC; Jisan Information System; www.pda21.com; E-mail: webmaster@pda21.com; Phone: 82-2-785-5085

Classic Balls

The Classic Balls is easy to use. All you have to do is to move the blinking piece by touching the source and destinations places. If you have the same five consecutive pieces in all directions, they will disappear and you win points. If the screen fills up with pieces, the game is over.

$7.00; Use With: P/PC; AlfaBit Software; www.alfabit.net/; E-mail: support@alfabit.net; Phone: 604-306-9504

Corner Card

Corner Card is 1-deck Solitaire game, also known as Four Seasons and Vanishing Cross.

$10.00; Use With: P/PC; CESoftware.dk; www.cesoft.dk; E-mail: info@cesoft.dk

Dots!

A free game for your handheld and Palm-size PC! The next time you're stuck in a waiting room, or an airport, or in your boss's office waiting for him to get off the phone, try a quick game of Dots! Its fast, fun and free.

Freeware; Use With: H/PC; P/PC; Ilium Software; www.iliumsoft.com; E-mail: info@iliumsoft.com; Phone: 888-632-5388 or 734-973-9388

HK Majong

HK Majong is a mahjong-type game for the Palm-size CE. Includes source code.

Freeware; Use With: P/PC; CE Station; members.xoom.com/tennywoo/hkmajong/index.htm

JIS Game Pack

A trio of Tetris, Araknoid, and Slide-puzzle type games.

Freeware; Use With: H/PC; Jisan Information System; www.pda21.com/; E-mail: webmaster@pda21.com; Phone: 82-2-785-5085

PalmGB

Play GameBoy games on your CE machine! Use ROM images which can be made from your game cartridges and have fun playing continuous non-stop games. Supports sound, color and P/PC buttons. Demo runs full-featured for two weeks.

$30.00; Use With: H/PC; P/PC; Eskimo North; www.eskimo.com/; E-mail: support@eskimo.com

PocketChess

PocketChess v1.0 for Windows CE Handheld PC is a high quality, well featured Chess playing program.

Freeware; Use With: H/PC; P/PC; Eskimo North; www.eskimo.com/; E-mail: support@eskimo.com

Shanghai Majong

A traditional Chinese board game. Figure out the matched blocks in the fastest way. Like the "Sichuan Sheng," but in 3D.

Freeware; Use With: P/PC; CE Star; www.ce-star.com

Sichuan Sheng Majong

A traditional Chinese board game. Figure out the matched blocks in the fastest way.

Freeware; Use With: P/PC; CE Star; www.ce-star.com

ZipCE

ZipCE is an Infocom-type game interpreter that will play all the games released by Infocom. It is based on the Zip interpreter by Mark Howell.

Freeware; Use With: H/PC, P/PC; ZipCE; http://kevinnb.homepage.com; E-mail: kevinnb@access1.net

Software/Internet

Yahoo! Messenger

Yahoo! has released mobile versions of its Messaging program for the Palm and Window CE operating systems. Yahoo! Messenger is a free messaging service for users of Yahoo! services. The Messenger alerts you instantly when you have new mail in your Yahoo! Mail and Yahoo! Personals accounts or when it's time for one of your Yahoo! Calendar appointments. Yahoo! Messenger includes Stocks, News and Scoreboard tabs so that you can keep track of all your personalized information no matter where you're surfing on the Internet. To use this free service your Palm-size PC must have a wired or wireless modem and an Internet browser.

Freeware; Use with: P/PC (must be a Yahoo! user; Download or demo available; Yahoo!; http://messenger.yahoo.com

InfoManagers

CCExplore

CCExplore is a file manager / explorer for Palm-size PCs running Windows CE 2.11 or higher. CCExplore implements all standard features you can expect from an explorer. You can copy or delete files, create folders, run programs and search for files or folders.

$n.a.; Use With: P/PC; Cocos Development Ltd; www.csq.cc/; E-mail: csqc@aol.com

dsNotePad

Take along and administer all of your notes anytime and anyplace with the help of your Windows CE device. No thoughts will get lost because of notes written on scrap paper and then lost, no urgently needed hints or memos sticking uselessly on your PC's monitor, no searching for important telephone numbers you may have written down while on the road. Never again will you forget your passwords and secret pin numbers. Stay organized with dNote and share your notes with others via infrared!

$n.a.; Use With: P/PC; Deang; http://.jps.net/deang/basice.htm; E-mail: deang@usa.net

dsNOTEPAD

A very small (14 kb) and fast Notepad application for your Palm-size PC.

Freeware; Use With: P/PC; DeloSoft; www.delosoft.com; E-mail: info@delosoft.com

Meeting Minutes Manager

Meeting Minutes Manager is designed to reduce the time consumed when creating meeting minutes by minimizing the need for paper notes. Meeting Minutes Manager helps you focus on the essence of the meeting, assisting you in capturing agenda discussions, arising actions, to whom actions are assigned, and by when they must be completed.

$40.00; Use With: H/PC; P/PC; Speak and Byte Pty Ltd; www.speakandbyte.com.au; E-mail: info@speakandbyte.com.au; Phone: 61-2-9557-7101

Stupid PIM Tricks

Stupid PIM Tricks is a collection of Windows CE applications

PhatWare Corporation specializes in software for the Handheld PC.
By listening carefully to customer feedback, we have created products that fulfill our users' important needs and desires.
Visit PhatWare's web site and try our products for 15 days absolutely FREE!

http://www.phatware.com

- Organize your notes with HPC Notes.
- Check your documents with HPC Spell.
- Manage databases with HPC dbExplorer.
- Connect to networks with HPC NetProfile.

PhatWare Corporation

HPC Notes
HPC Spell
HPC dbExplorer
HPC NetProfile
HPC Trace

650 299-0110
650 299-1369 Fax

which extend the functionality of Windows CE PIMs (Personal Information Manager, e.g. Contact Manager, Task Manager, etc). Currently, these are being released for beta testing. The beta will expire in August, after which the beta will be extended, or the package will be available for retail.

Freeware (Beta); Use With: P/PC; AnyWare Consulting; members.aol.com/anyware/wce/pimtricks.htm; E-mail: anyware@aol.com; Phone: 805-968-0900

Internet

AOLInstant Messenger

Sometimes e-mail just isn't fast enough. Communicate on the Internet in a whole new way! Try AOL Instant Messenger now and start exchanging personal messages instantly and privately with other users —no matter what country you are in or how you are connected to the internet.

Freeware; Use With: H/PC; CE Station; www.cestation.com

DialupMaster

Connectivity is crucial with a Windows CE device, and power mobile users require more functionality then the current set of features in Remote Networking. DialupMaster is a utility to fill the gaps with the following features: Pop-up hierarchical dial menus from tray; Customizable Login scripts; Online Timer in tray; Keep-alive PING messages; Full integration into OS (No need to dial with DialupMaster to use its features).

$14.95; Use With: H/PC; P/PC; CE Station; www.cestation.com

FTNet

Text based Telnet software running off of Windows CE.

Freeware; Use With: H/PC; CE Station; www.cestation.com

iBrowserPlus

iBrowserPlus with 128 bit SSL A Secure Web Browser for Color & Greyscale Palm-size PCs running Windows CE versions 2.0 & 2.1 iBrowser Palm-size PC browser supports 128-bit encryption for secure e-commerce. iBrowserPlus supports the use of Microsoft's Windows CE Network Client component to allow users to gain access to remote file resources.

$24.99; Use With: H/PC; P/PC; H/PC Pro; Foliage Software Systems; ; E-mail: info@foliage.com; Phone: 781-993-5500

vxFtp

vxFtp is a complete high-performance file transfer protocol (FTP) client for Windows CE-based H/PC Pro devices. vxFtp provides standards-based file transfer protocol functionality and is compliant with RFC 959.

Freeware; Use With: H/PC Pro; Cambridge Computer Corp; www.cam.com/windowsce.html; E-mail: webmaster@cam.com; Phone: 800-462-4481

Spreadsheets

bSQUARE SpreadSheet

A full-featured spreadsheet solution that lets you view, edit and save Pocket Excel files on your Palm-size PC device. It supports over 50 mathematical, statistical and financial functions and lets you import, view and edit comma-delimited files (*.csv) from other database or other spreadsheet programs.

Price: $39.95; Use with: P/PC; Download or demo available; Contact: bSquare Corp.; www.bsquare.com/

Pocket Spreadsheet

Pocket Spreadsheet offers a subset of Excel capabilities – essentially the mathematical operators. Pocket Spreadsheet lets you select rows, columns, multiple adjacent cells; Cut, Clear, Copy and Paste cells; edit formula; save column and row sizes; search for formula/text. Max worksheet size 50 Rows x 30 Columns (1500 cells), 24 built-in functions, can be synchronized with Excel spreadsheets. Pocket Spreadsheet and its worksheets can be stored on CompactFlash memory.

Price: $16; Use with: P/PC; Download or demo available; Surerange; www.surerange.com/sheet.html

PTab

A full-featured spreadsheet program that includes 44 built-in scientific, statistical and financial functions. You can export from or import to Microsoft Excel as well as CSV (Comma Separated Values) formats. PTab lets you create up to 256 sheets x 16384 rows x 256 columns. Its other features include Numeric, Text, Date/Time support and functions, Boolean values; 102 built-in scientific, statistical, financial, date/time, logical and text functions; much more.

Price: $40; Use with: P/PC; Download or demo available; Z4Soft; Web: www.z4soft.com/; E-mail: email@z4soft.com

SpreadCE

A simple spreadsheet program for the Palm-size PC and can import/export in Pocket Excel file format. Features include 256 columns x 65536 rows; supported operations: + - * / ^ % and 299 other functions (listed on Web site); cut, copy, paste, clear; insert/delete rows and columns; find text in formula or result; go-to specified cell; much more.

Freeware; Use with: P/PC; Download or demo available; Bye Design Ltd.; www.byedesign.freeserve.co.uk; E-mail: stephenbye@byedesign.freeserve.co.uk

Reference

ChoiceWay Guide to Rome

This is a demo version of ChoiceWay Media's travel guide to Rome, featuring detailed information on the city (transportation, tourist destinations, etc.), a travelers dictionary, and interactive maps. London and Paris guides available, with more to come.

$19.95-$29.95; Use With: P/PC; Choiceway Media Inc; www.choiceway.com/; E-mail: support@choiceway.com

CitiKeyStockholm

CitiKey puts Stockholm in your hand, with digital maps, restaurant reviews, cinema listings and much more. CitiKey is committed to presenting you with the best the city has to offer. Updated and reliable information and services at your fingertips when you need it the most.

Freeware (Beta); Use With: H/PC; P/PC; CitiKey; www.citikey.com/; E-mail: info@citikey.com; Phone: 46 (8) 22 40 80

HandMap Deluxe

This program is an electronic street directory. You can zoom in and out and pan around looking at the map of the city or region installed. You can search for features (streets, parks, etc.) quickly by name.

$16.00; Use With: H/PC; P/PC; Evolutionary Systems Pty Ltd; www.evolutionary.net/; E-mail: support@evolutionary.net; Phone: 510-658-5244

HandyCards

Test yourself with flash cards on your handheld computer. Design your own question and answer files on your handheld computer or on any desktop or laptop computer. Features include: unlimited number of questions; unlimited question length; merging of multiple test files; temporary removal of questions to allow focusing on questions which need more attention; test scoring; swapping of questions and answers; last test file is auto-loaded when HandyCards starts; the testing sessions can be saved for later continuation.

Freeware; Use with: H/PC, P/PC; Download or demo available; HandyMed; www-personal.umich.edu/~jfrangis/ handymed/; E-mail: handymed@yahoo.com

Primer PDF Viewer

Lets PC Companion users view PDF-formatted documents on Handheld and Palm-size PCs. Primer supports most PDF image formats, as well as bookmarks, hyperlinks, and Table-of-Contents. Multiple levels of magnification are available, including a box zoom feature to enlarge a selected area. Other features include text find and access to PDF meta-data.

Freeware (Beta); Use With: H/PC, P/PC; Ansyr Technology Corp; www.ansyr.com/feature; E-mail: info@Ansyr.com; Phone: 206-528-8248

SuperMemo for Windows CE

SuperMemo for Windows CE can help you remember facts and figures. Now you can even use a single minute to refresh your memory on facts that are important to your life and your professional career.

$16.00; Use With: H/PC; P/PC; H/PC Pro; SuperMemo World;

www.tss.com.pl/smce/; E-mail: support@supermemo.com; Phone: 48 61 8794394

Synchronization

Tascal Folder Sync

This program is a folder synchronization utility. This utility can copy only updated files from a source folder to a destination folder. This utility checks the file's time of modification with the FAT file system's time. This utility is useful for different machines using FAT formatted media such as floppy disk, Zip drive, etc.

$20.00; Use With: H/PC; BiGlobe; www2r.biglobe.ne.jp/~tascal/; E-mail: tascal@msb.biglobe.ne.jp

Utilities

Capture CE

Click the little icon of the camera in the system tray. Instantly screenshots in .BMP format appear on your handheld.

Freeware; Use With: H/PC; P/PC; Mobile Computer Software Gallery; www.oohito.com/; E-mail: GHC@niftyserve.or.jp

CardLauncher

With the click of a single button, CardLauncher will automatically launch any number of user-defined applications, located in main memory OR on the Storage Card(s), after a soft reset.

Freeware; Use With: H/PC; P/PC; CE Station; www.cestation.com

CCRegEdit

CCRegEdit is a registry editor for Palm-size PCs running Windows CE 2.11 or higher. With CCRegEdit you can easily read and modify your device's registry without the need for a desktop PC. Special features include a split screen layout for easy handling and a fast global find function. CCRegEdit supports all common data types like strings, multi strings, dwords and binary data.

Freeware; Use With: P/PC; Cocos Development Ltd; www.csq.cc/; E-mail: csqc@aol.com

CCZip

With CCZip you can open archives in the popular ZIP-Format that you created on your desktop PC. You can extract and remove files from the archive. You can even create new archives and add files to existing or new archives. Note, however, that due to the limitations in memory and speed on a Palm-size PC CCZip will usually yield somewhat lower (about 20-30%) compression ratios than compression software on a desktop PC.

Freeware; Use With: P/PC; Cocos Development Ltd; www.csq.cc/; E-mail: csqc@aol.com

CEMon

CEMon is a driver / application combination that monitors and displays flash memory activity of Windows CE operating system, both on logical and physical levels. CEMon allows a user of a handheld PC to see how Windows CE works, how applications use files and DLLs, and track down problems in system or application configuration.

Freeware; Use With: H/PC; Epiphan Consulting; www.epiphan.com/; E-mail: info@epiphan.com; Phone: 613-749-9111

ColorMe

ColorMe provides the Windows standard Display Appearance settings for changing your system colors. Make Windows CE look the way you want it to look, not the way Microsoft thinks it should look. Along the way see which applications weren't programmed to properly handle color in Windows CE - including portions of Windows CE itself!

Freeware; Use With: P/PC; Snoopsoft.com; www.snoopsoft.com/ce/; E-mail: websupport@snoopsoft.com

Cuckoo's Call

Choose the song you would like to wake up listening to and the application ensures that you start the morning listening to the song of your choice. The user can schedule any recorded song to be played using Cuckoo's Call.

$10.00; Use With: H/PC; P/PC; ITIL; www.itil.com; E-mail: palmix@itil.com; Phone: 91 11 695 900 Ext. 344

DataBeam

DataBeam will aid the user in transferring any Windows CE database and any record/ records of a Windows CE database and any text file from one Windows CE device to another via the infrared port. So you can get rid of tedious synchronization procedures using desktop PCs.

$10.00; Use With: H/PC; P/PC; ITIL; www.itil.com; E-mail: palmix@itil.com; Phone: 91 11 695 900 Ext. 344

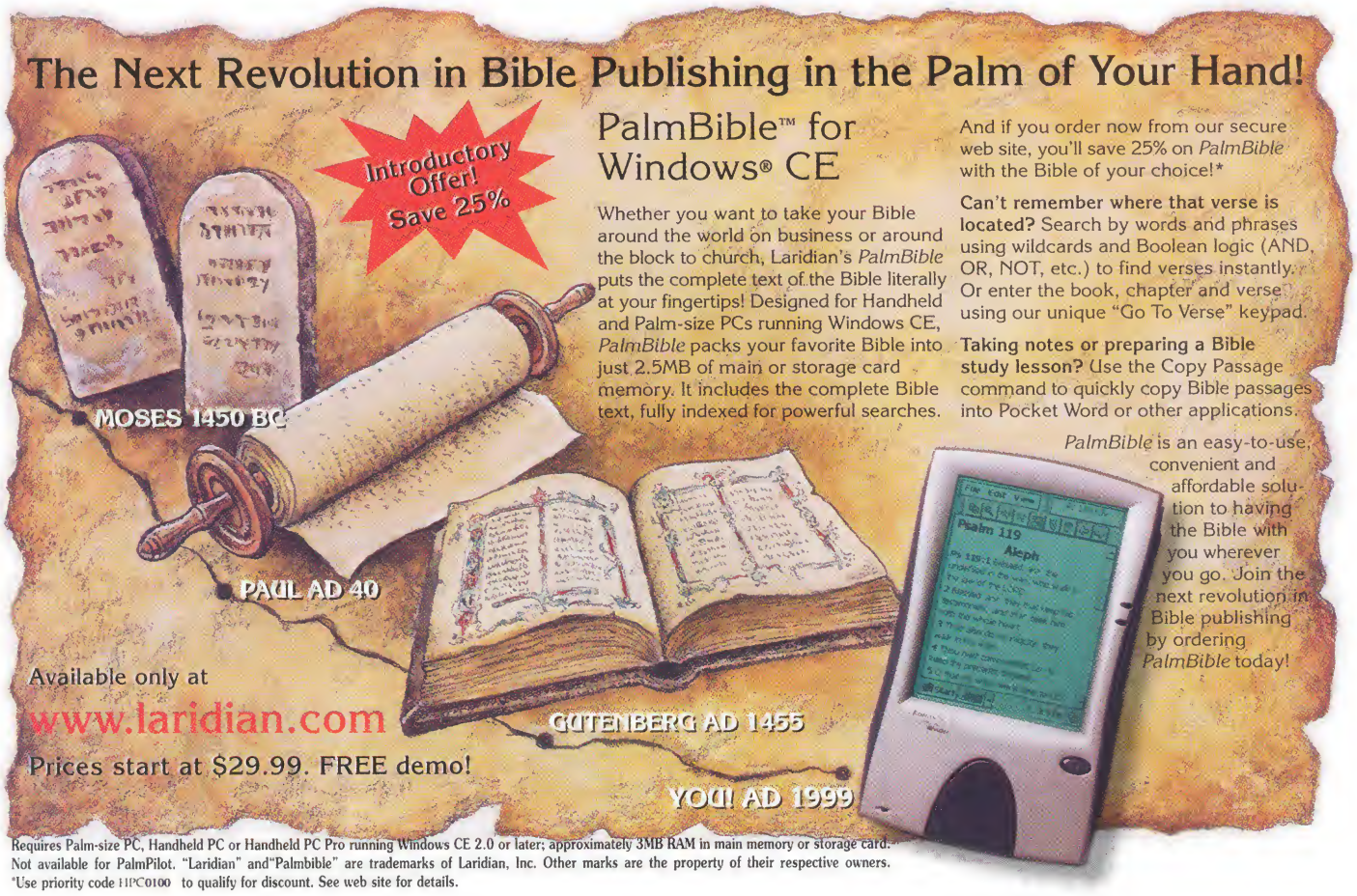
DeSappear

A small app that makes your desktop background color transparent, so you'll see the background wallpaper instead of the background color under the desktop icon text!

Freeware; Fong Chee Keat; http://web.singnet.com.sg/~cheekeat wince/DeSappear/desappear.html; E-mail: cheekeat@iname.com

GetSetGo

A scheduler which sets reminders for you in the form of alarms, auto start for execution of programs on the scheduled date and time (which may be Yearly / Monthly / Weekly / Daily /



One Shot schedule runs) and much more. GetSetGo can be set for odd schedule-runs e.g. every second Saturday or first Sunday or fourth Saturday of every month.

$4.00; Use With: H/PC; P/PC; ITIL; www.itil.com; E-mail: palmix@itil.com; Phone: 91 11 695 900 Ext. 344

KillMe

AutoClose continually scans your computer at the user-defined time interval and closes any open programs that exceed a user-defined threshold. Programs are closed in reverse usage order, so the least used programs are closed first, leaving those you're currently using open and more responsive because they'll have more memory to work with!

Freeware; Use With: P/PC; Snoopsoft.com; www.snoopsoft.com/ce; E-mail: websupport@snoopsoft.com

Microsoft Plus! Pack

More fun utilities for the Handheld PC Pro. Includes Alt+Tab Program Switcher, Resource Meter, Mute, Pocket Paint (with color), Squares game, Pocket Word Count, Image Viewer, Word to PowerPoint converter, PIM Today, E-mail Spell Checker, and Internet Explorer Favorites.

Freeware; Use with H/PC Pro; Download at: www.microsoft.com/windowsce/products/download/plus

PPCDesktop

Adds a desktop to the Palm-size PC. You can create, delete and rename a total of 38 desktop applications or shortcuts. To run an application, double-tap the applications icon on the desktop. The desktop's background image is changeable with bmp, 2bp and gif file format by yourself. Lastly, you can switch to another task from your current task, can terminate one or entire tasks.

Price: $12.95; Use with: P/PC; Download or demo available; PDA21.COM; www.pda21.com

QuickDun

QuickDun lets you quickly access the Dial-Up Networking entries on your computer or H/PC. One click displays a menu of all DUN entries and a second click launches that connection. Note: Some handhelds need the MFC file to run this application: SH3, MIPS.

$18.00; Use With: H/PC; P/PC; AppStudio; www.appstudio.com; E-mail: sales@appstudio.com

QuickExplore

QuickExplore lets you quickly access your favorite explorer folders on your computer or H/PC. One click displays a menu of all your user-defined favorite folders and a second click opens that folder. Note: Some handhelds need the MFC file to run this application: SH3, MIPS.

$18.00; Use With: H/PC; P/PC; AppStudio; www.appstudio.com; E-mail: sales@appstudio.com

ScrapPanel

ScrapPanel is a Palm-size PC Input Method that simplifies the chores associated with using and managing scraps of information. ScrapPanel puts all of the clipboard functionality in one easy to use place. ScrapPanel includes the powerful ability to filter the contents of the clipboard, extracting bits of information or changing the format of it. ScrapPanel also allows scraps of information to be saved away for later use.

$25.00; Use With: P/PC; Burr Oak Software; www.burroak.on.ca/; E-mail: info@burroak.on.ca

SeNTry 2020 for Windows CE

Sentry 2020 provides encrypted virtual volumes. All information (files, folders, file system structures) stored on a Sentry volume is transparently encrypted/decrypted every time an application performs a read/write operation on the volume. Without a correct password, Sentry volume is just a file with encrypted contents.

$50.00; Use With: H/PC; P/PC; H/PC Pro; Soft Winter Inc; www.softwinter.com; E-mail: info@softwinter.com

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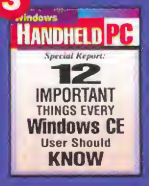

• Use order card P. 8 or • Order on the Web www.hpcmag.com or • Call 800-373-6114

Siteswapper

Siteswapper is a program for generating and viewing juggling patterns that can be described with the siteswap notation. By specifying the number of balls, the maximum height of a throw, and the maximum length of the siteswap number sequence, the program can calculate all matching siteswaps. The generated siteswaps can also be animated.

Freeware; Use With: H/PC; P/PC; CE Station; www.cestation.com

Tascal FilerEx

Windows CE's standard explorer has no folder tree. It's so hard to change current folder. Tascal FilerEx has folder tree, so it's easy to change the location.

$20.00; Use With: H/PC; BiGlobe; www2r.biglobe.ne.jp/~tascal/; E-mail: tascal@msb.biglobe.ne.jp; index_e.htm

logo by jason@kensai.com

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PC Companions

What is a PC Companion? PC Companions are small, portable computers using the Windows CE operating system. All come with operating system and basic applications built in.

Reading This Chart: **Price** $ U.S. unless otherwise indicated; **Display** e.g. 10" = diagonal measurement in inches; 800x600 = pixel resolution; 256c = displays 256 colors; Touchpad = pointing device if unit does not have a touchscreen; **CPU** e.g. 128 MHz = processor speed, SH4 = processor type. NOTE: you may need to know the processor type when you purchase 3rd party software for the device.; **RAM/ROM** RAM = memory available for running programs and storing data. ROM = used for permanent storage of built-in OS and applications. For example, 16(64) RAM means the PC Companion ships with 16 MB RAM which can be expanded to 64 MB RAM with an upgrade option; **Modem** a number in this column indicates a built-in modem and the max. speed it operates at ; **Ports** I/O ports: A=Audio I/O jacks Cf=CompactFlash Slot Fd=Floppy drive M=MiniDRAM slots P2=PS2 Slot P=Parallel port U=USB V=VGA-out **Battery** indicates the type of battery used and the hours of continuous use you will get, according to mfg. specs.; **Size/Weight** dimensions of device, in inches (depth or length x width x height) and pounds, unless otherwise indicated; **Comments** additional features of note.

Handheld PC Pros

Windows CE 2.11+ operating system and Handheld PC Pro Edition of built-in applications. All units have backlighting; All but 3 units have touchscreens; All units have built-in microphones and speakers; All have PC Card slots, Serial, modem, and IrDA ports.

PC COMPANION		PRICE	DISPLAY(C=COLOR)	CPU	RAM/ROM	MODEM	PORTS	BATTERY	SIZE(IN)/WT(LB)	COMMENTS
Compaq Aero 8000 www.compaq.com		$949	10", 800x600, 256c touchPad	128MHz 64-bitSH4	16 (64)RAM 16 ROM	56k	Cf,V,A,P2	L-Ion/ 7hr	10.75x8.5x1/2.95*	SmartCard reader; optional 13hr battery
Fujitsu PenCentra130 www.fpsi.fujitsu.com		n.a.	8", 640x480 256c	131MHz MIPS	16 (48)RAM 24 ROM	56k	(2)U,P2	L-ion/ 12hr	8.9x 6.5x 1.3 / 32oz	Pen-entry tablet; 8MB flash ROM built-in; software
HP Jornada 820 www.hp.com/jornada		799	8.2", 640x480, 256c touchPad	190MHz ARM	16 (32)RAM 16 ROM	56k	Cf,V,U	L-Ion/ 8hr	10x7x1/2.5*	Optional 15hr battery
HP Jornada 680 & 690 www.hp.com/jornada		899/999	6.5", 640x240, 256c	133MHz SH3	16 (32)RAM 16 ROM	56k	Cf,S	L-Ion/ 7hr	7.4x3.7x1.3/1.1*	Pocketable H/PC Pro; optional 21hr battery Jornada 690 has 32 MB RAM
Hitachi HPW-600 ET www.hitachi.co.jp/Prod/hpw/		899	7.5", 640x480, 65Kc	128MHz SH4	16 (32)RAM 16 ROM	56k	Cf,V,U,A	L-Ion/ na	8.7x1.2x6.3/1.6*	Tablet H/PC Pro with no keyboard
IBM WorkPad z50 www.pc.ibm.com		999	8.2", 640x480, 64Kc TrackPoint	131MHz MIPS	16 (48)RAM 20 ROM	33.6k	Cf,V,A	L-Ion/ 8hr	8x10.2x1/2.7*	Optional 16hr battery
Itronix T-5200 www.itronix.com		varies	7.3", 640x240, mono	74MHz MIPS	16 RAM 16 ROM	33.6k	A	L-Ion/ na	na/na	Ruggedized H/PC Pro for vertical market applications
NEC MobilePro 880 www.neccsd.com/		899	9.4", 800x600, 64Kc	168MHz, MIPS	32 (48) RAM 24 ROM	56k	Cf,A,V,U	L-Ion/8hr	9.6x7.5x1/2.5*	Mono headset jack
NEC MobilePro 780 www.neccsd.com		799	8.1", 640x240, 69Kc	168MHz MIPS	32 (48) RAM 24 ROM	56k	Cf,A,V	L-Ion/10hr	9.6x5.2x1.1/1.7*	Mono headset jack; Jap. version available. Only 1/2 VGA screen H/PC Pro with fully touchtypeable keyboard
NTS Dreamwriter IT nts.dreamwriter.com		895	640x480, 256c	80MHz SH3	16 (64)RAM 16 ROM	33.6k	P,A,Fd	NiMH/ 8hr	15x11x2.5/5.5*	Built-in LAN adapter & Floppy drive
Samsung IZZI Pro www.samsung.com		est 850	8.2", 640x480, 256c TouchPad	148MHz MIPS	16 (48)RAM 16 ROM	56k	Cf,V,U	L-Ion/ 10+hr	8.94x7.76x1.1/2.2*	Not available in U.S.
Sharp Mobilon TriPad www.sharp-usa.com		999	9.4", 640x480. 256c	90MHz MIPS	16 (32)RAM 24 ROM	33.6k	Cf	L-Ion/ 12hr	11.25x8.75x1/3.2*	Sleek; unique 3-position hinge for notebook, display, tablet functioning
Sharp Mobilon Pro www.sharp-usa.com		899	8.2", 640x480, 4Kc	129HMz MIPS	16 RAM 16 ROM	33.6k		L-Ion/ 8hr	9.3x7.7x1.1/2.7*	Accepts optional digital camera card
Vadem Clio C-1050 www.vadem.com		999	9.4", 640x480. 64Kc	168MHz MIPS	32 RAM 24 ROM	56k		L-Ion/ 12hr	11.25x8.75x1/3.2*	Sleek; unique 3-position hinge for notebook, display, tablet functioning
WPI Husky FeX 21 www.huskyinc.com		1,900	6.5", 640x240, c/m	75MHz Toshiba	16 (32)RAM 16 ROM	33.6k	Cf,U	NiMH/ na	7.5x6.1x1.5/1.6*	Vertical market device. Flat, unhinged device with keyboard below screen

Handheld PCs

Windows CE 2.0+ operating system and Handheld PC Edition of built-in applications. All units have backlit touchscreens; All units (except the Velo 500) have PC Card slots; All units have serial and IrDA ports, built-in microphones and speakers. "Discontinued" devices are no longer being made, or may still be available in the distribution chain. We no longer list CE 1.0 H/PCs.

PC COMPANION		PRICE	DISPLAY(C=COLOR)	CPU	RAM/ROM	MODEM	PORTS	BATTERY	SIZE(IN)/WT(LB)	COMMENTS
Casio A20 www.casio-usa.com		$600	6.5", 640x240, mono	80MHz SH3	8 RAM 8 ROM		Cf	AA/ 25hr	7.25x3.68x1/1*	Discontinued; long battery life; optional L-ion rechargeable
Casio PA-2400 www.casiohpc.com		n.a.	480x240, mono	80 MHz SH3	8 RAM 16 ROM	n.a.	Cf	L-ion/ 15hr	0.8x 7x 4.25/1.1*	Vertical market; pen-entry only; accepts AA batteries
Compaq 2010c www.compaq.com		899	5.9", 640x480, 256c	75MHz MIPS	8 (32)RAM 16 ROM	33.6k		NiMH/ 4hr	3.9x .3x1.6/0.95*	Accepts AA batteries; Upgrade chip to H/PC Pro available

At A Glance!

PC COMPANION	PRICE	DISPLAY(C=COLOR)	CPU	RAM/ROM	MODEM	PORTS	BATTERY	SIZE(IN)/WT(LB)	COMMENTS
Hitachi HPW-200EC www.hitachi-hpc.com	799	8.1", 640x240, 256c	100MHz SH3	16 (32)RAM 12 ROM	33.6k	CI	L-Ion/ 10hr	10.0x 5.2x1.3/1.8#	Upgrade chip to H/PC Pro available
Novatel Wireless CONTACT www.novatelwireless.com	1,000	7.1", 640x240, mono	80MHz SH3	8 (32)RAM 8 ROM	14.4k	CI	L-Ion/ 8hr	7.6x4.9x1.2/1.5#	Landline and wireless CDPD modem; communications software
Sharp Mobilon HC-4500/4600 www.sharp-usa.com	700	6.5", 640x240, 256c	74MHz MIPS	16 (32)RAM 16 ROM	33.6k		NiMH/ 6hr	7.3x3.7x1.2/1.1#	Accepts optional Digital Camera Card

Palm-size PCs

Windows CE 2.0 or 2.11 operating system and Palm-size PC edition of built-in applications. All units have backlit touchscreens; all units have CF slots, serial and IrDA ports.

PC COMPANION	PRICE	DISPLAY(C=COLOR)	CPU	RAM/ROM	MODEM	PORTS	BATTERY	SIZE(IN)/WT(LB)	COMMENTS
bCOM Mars www.bcom.com.tw	$379	320x240, mono	75MHz MIPS	4 (8)RAM 8 ROM	28.8k		2 AA	5.4x 3.4x 0.8/8oz	Limited U.S. availability
Casio E-10/11 www.casiohpc.com	399	320x240, mono	100MHZ, VR411	8 RAM 8 ROM	14.4k	A	2 AAAs	4.9x 3.2x .72/6.6oz	Optional Modem add-on module, 19.2k; optional rechargeable battery
Casio E-100/105 www.casiohpc.com	499	320x240, 64Kc	131Mhz MIPS	16 (32)RAM 32 ROM		A	L-ion/ 10hr	3.3x 5.2x .80/8.9oz	Built-in MG3 player; stereo headphone jacks
Compaq Aero 1530 www.compaq.com	300	240x320 mono	70 MHz MIPS	16 RAM 16 ROM		A	L-ion/ 14 hr	5.13x 3.11x 5 / 5 oz	Smallest, lightest Palm-size PC; readable monochrome screen; good battery life.
Compaq Aero 2100 www.compaq.com	449-499	320x240, 256c	70MHz MIPS	8 (16)RAM 8 ROM		A	L-ion/ 10hr	5.3x 3.3x .78/11oz	Reflective TFT display readable in daylight; Headphone/microphone jack; vibrating alarm
HP Jornada 420 www.hp.com/jornada	399	320x240, 256c	100MHz SH3	8 RAM 8 ROM		A	L-ion/ 6hr	5.1x 3.2x 0.9/8 oz	Stereo headphone jack, built-in MP3 player, excellent add-on software
HP Jornada 430se www.hp.com/jornada	499	320x240, 65c	133MHz SH	16 RAM 8 ROM		A	L-ion/ 8hr	5.1x 3.2x .9/8.8oz	Transparent flip-over cover; MP3 stereo digital imaging
MaxTech PD-910 www.maxtech.com	300	320x240 mono	66 MHz MIPS	8 RAM 8 ROM	na	A	AAA/ 20 hr	4.8x 3.2x 0.7 / 5.3 oz	Vibrating alarm; optional mobile cradle with 33.6K modem; looks like an OEM'd Everex Freestyle
Norand PenKey 6100	3,675	5", 240x320, mono	naMHz AMD 386	(8)RAM / 1 FlashROM		S.LAN,Ir	L-ion/na	na	Vertical market; built-in charger
Palmax PD-300 www.palmax.com	299	320x240, mono	60Mhz SH3	2 (10)RAM 8 ROM		A	AAA/ na	4.9x 3.2x .8/6.5oz	Limited availability in U.S.
Philips Nino 510 nino.philips.com	300	n.a.	75MHz MIPS	16RAM ROM na		A	NiMH or AA/ 8h	3.4x 5.3x .75/8oz	Optional add-on 19.2k modem module
Symbol PDT 7500 www.symbol.com	n.a.	240x160, mono	66MHz AM486	na RAM na ROM	n.a.	Ir,Scan*	L-ion/ 10hr	3.5x 2.2x 8.4 / 1.3*	*Vertical market "smart scanner"; WAN data transmission options
Telxon PTC Series www.telxon.com	n.a.	240x320, mono or 640x480, mono	100MHz AMD Elan	4 (64)RAM 512K PROM			L-ion/na	varies / 1.5 to 2.50z	3 vertical market, pen-entry devices; built-in barcode readers, rechargers and wireless options
Trogon Palm Power www.trogoncomputer.com	215	320x240, mono	54Mhz MIPS	4 (16)RAM 8 ROM			NiMH or AAA/ 20hr	4.8x 3.2x .64/5.3oz	Optional docking cradle with 33.6k modem; vibrating alarm
Uniden www.uniden.com	380	320x240, mono	75MHz MIPS	4 (8)RAM 8 ROM	28.8k		AA/ 15hr	5.5x 3.4x .74/na	

Auto PC

Windows CE 2.0 operating system and Auto PC built-in applications. Uses voice command and buttons to access features. Comes with AM/FM tuner, CD player, 35 watt 4 channel amplifier and computer in an integrated unit that fits in the dashboard of the automobile. Includes phonebook, navigation, voice recognition and control software.

Clarion Auto PC www.autopc.com/index2.html	$1,299	6", 256x64, 8c	naMHz/ SH3	16 RAM 8 ROM		Cf,U	12v auto battery	na*	Option: GPS, turn-by-turn directions, cellphone cradle, wireless receiver, vehicle diagnostic module * Size of an in-dash AM/FM stereo

Quick Tips & PC Companion Tricks

by Jim Christian

Associate Editor, Handheld PC Magazine*; Sysop, CompuServe's Windows CE Forum; Associate Forum manager, MSN's Windows CE forum.*

How fast is your Internet connection?

Just because you have a built-in 56 Kbps modem, it doesn't mean that you've got a 56 K internet connection. Static electricity caused by radio signals, power lines, and other sources can interfere with modem signals, as well as the telephone company's line amplifiers and call switching systems. All told, these interferences can force 56K modems to fall back to speeds of 33.6Kbps and lower.

Computing Central has a Web page that lets you test the speed of your Internet connection. Connect to your ISP, open Pocket Internet Explorer and go to the following Web address:

http://computingcentral.com/topics/bandwidth/speedtest50.asp#ISPProblem

This will automatically test the speed of your connection. Don't get your hopes up, though. My HP Jornada 680 has a built-in 56K modem, but the test indicated a 27.2 Kbps connection speed. Ugh!

Word and Excel templates from Microsoft

Microsoft's MS Office Web site is an excellent source of useful information and downloads for users of the MS Office applications. Most of it deals with the desktop PC versions of the Office applications, but the download sections include templates that can be used with Pocket Word, Excel, Access, and Powerpoint. Here's what you do.

1. Go to http://officeupdate.microsoft.com/default.asp

2. Click on the desired application in the left banner (Word, Excel, etc.).

3. Then click on "downloads." You're taken to a list of add-ins, documents, updates, and document TEMPLATES.

4. Select the desired template and click on "download." An executable file is downloaded to your computer.

5. Click on the file in Explorer and the executable file will install the template in the appropriate folder on your desktop PC. [Important note: The executable must be run on the desktop PC – you cannot download this .exe file to your H/PC and run it there.]

Once the template is installed on your desktop PC (C:\Program Files\Microsoft Office\Templates), you can copy it over to your H/PC and open it up in the appropriate application. H/PC users need to use ActiveSync to translate the template to Pocket format. H/PC Pro users can copy the files over directly, without translating them. If you have an H/PC Pro, it's better not to translate the templates to, or save them in Pocket Word or Excel format. You can lose some of the special formatting.

I downloaded the Microsoft Word 97 Customer Invoice template and the Press Release templates. The Invoice templates let you quickly create a standard invoice form with built-in fields for quantity, unit price, description, and total amount. It automatically calculates and fills in the total amount based on the values you enter in the quantity and unit price fields. The PR templates (see Screens 1 & 2) are really three press release templates. They included placeholder text, titles, and graphics, and come with step-by-step instructions.

Among the interesting templates found on the Excel page include a Loan Manager Template, which lets you amortize loans and view different payment scenarios; and a Business Planner Template, which lets you analyze a business' current financial situation and helps forecast its future cash flow.

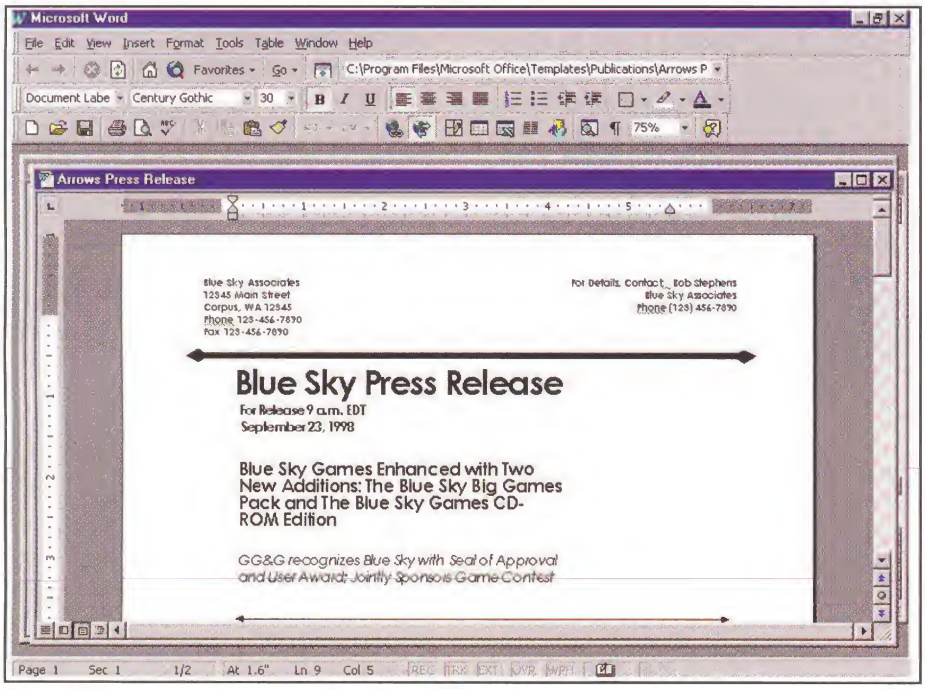
These templates are designed to work with the full desktop PC versions of the MS Office applications. Not all of the formatting or features may translate to the Pocket applications. You may have to modify templates for your H/PC.

Keep track of your significant other with Calendar

My wife Pat's working schedule varies from day to day and week to week. Consequently, it's hard to keep track of what days and hours she will be at work. I need to do this to coordinate my activities with hers. After I got my first Palm-size PC I figured that I could use the Calendar program to keep track of Pat's work schedule. But having her work times showing up as appointments on my schedule was confusing.

The first thing I tried was to write down her work schedule in the Note Taker application. This worked, but it was cumbersome having to switch back and forth between applications. Next, I tried adding her work schedule to my task list. This allowed me to see when she was working by looking at the Active Tasks list on my Active Desktop. The trouble with this approach was that I had to mark each task as done at the end of the day. Since it wasn't really a "task" that I was performing, this bit of daily maintenance got to be annoying after a while.

I was still looking for a better solution when Calendar reminded me of my mother's upcoming birthday. I'd set up birthday reminders for the important people in my life as repeating all-day events in Calendar. They appear as nice little headings at the top of the Day view of Calendar. I realized that this was a much better way to keep track of Pat's work schedule. An all-day appointment shows up on the day it's scheduled and it disappears automatically after the day is over. I never have to go in and explicitly



Screen 1: This screen shows the MS Word 97 Press Release template displayed on a desktop PC. Notice the bold arrow separating the heading from the body of the press release.

Screen 2: The same Press Release template displayed on a HP Jornada 680 H/PC Pro, without translation to Pocket Word format. Notice that Pocket Word cannot display the bold arrow. However, it is still there. Change the text in this press release document and save it as a Word 97 document, and then copy it back to your desktop PC. The special formatting should print fine.

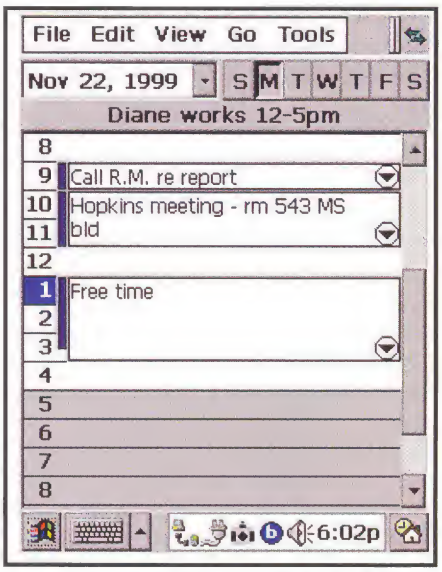
mark it as completed.

Now, when Pat tells me her schedule for the coming week, I just enter each day as an all-day appointment with no reminder. The description is something like "Pat works 12-5 PM" (see Screen 3). On days when Pat does not work at all, I just omit the all-day appointment altogether. This way, I can tell at a glance whether she's working today, and if so, what her working hours are. It's also easier for me to check whether she'll be working on a day that's coming up in the future, too. I simply go to the calendar page for that day and look for a heading at the top of the page.

I don't know if my wife thinks I'm any smarter now that I'm keeping better track of when she works, but at least now she only has to tell me once.

DBCleaner deletes old database files

Any database application stores its data file in your PC Companion's "Databases" folder. This is a unique folder that contains all the databases available on your PC Companion. When you uninstall a database program from your PC Companion, the process does not always remove the data file. If you install and uninstall a lot of applications, you may wind up with a collection of useless databases data files in this folder,



Screen 3: All-day events in Calendar can be used to display any information associated with that day, including the schedule of your significant other. Shown here, the event reminds the owner of the Palm-size PC that his wife, Pat, works from 12-5 pm.

causing you to run out of storage space on your PC Companion. DBCleaner is software that facilitates the user to remove such unwanted databases from Win CE devices and helps you to get the maximum out of your device. Get it at www.palmix.itil.com/newpalmix/products/dbclean_home.htm.

Need to synchronize folders?

You can not only synchronize Outlook data between your PC Companion and desktop PC, you can synchronize the contents of an entire file folder. For example, let's say you keep important company data in Word or Excel files on your desktop PC. Further, let's say you update these files frequently. You can keep these files in a specific folder on your desktop PC and automatically synchronize these files with their counterparts on your Handheld PC. There are two ways to do it.

1. Your PC Companion has a file folder named "Synchronized Files" in your "My Documents" folder. When you check the "Synchronize Files" option in ActiveSync, the files in your PC Companion's Synchronized Files folder are synchronized with their counterparts on your desktop PC's, found in the "Synchronized Files" folder found in your desktop PC's "My Documents" folder.

2. Use Tascal Folder Sync to synchronize any folder on your desktop PC. It works by checking the file modified time with the FAT's file system's time. Download Tascal Folder Sync at the following Web

site: www2r.biglobe.ne.jp/~tascal/download/wce/tfsync_e.htm.

Get a bigger external keyboard for your PC Companion

Check out the following solutions:

Hewlett-Packard External Keyboard – HP is now shipping an external keyboard that will work with any of its Windows CE devices running Windows CE 2.0 or higher. This includes the HP 320LX (upgraded to CE 2.0), 360LX, 620LX and 660LX as well as the Jornada 420/430se Palm-size PCs and the Jornada 680/690 H/PC Pros. The HP 420/430se Palm-size PC requires that the keyboard be plugged into the data cradle. More information is available at: www.hp.com/jornada/accessories/680/ex_keyboard.html.

Newton Keyboard – I have installed the small Newton Keyboard to my HP 660LX and it works near flawlessly. One needs to buy a keyboard from any Newton newsgroup for around $40, a cable and driver from PDA Concepts (http://www.pda-concepts.com) at 801-965-9141 for around $20. Here's a summary.

1. Small footprint but near-fullsize key keyboard.
2. It will take probably a little more battery current to power.
3. One must touch the H/PC screen every 5 minutes or so, so to keep the H/PC live, as it doesn't detect activity.
4. Great airplane work can be done.
5. All will fit in a mini briefcase and weighs around 2 lbs.
6. I installed the small driver to my Start menu (it was a minimized task icon upon reboot) but took it out after a while due to small use & I run lean and mean. I have a Start—>Program—>Utilities folder that I put it in.
7. It will work on most H/PCs and some P/PCs I have been told.
8. $70 max gets one a full-size keyboard on a H/PC (not bad!), and it's sort of fun too.

Check the following: MacWorks (www.macworks.com), Shreeve Systems (www.shreeve.com), Small Dog (www.smalldog.com), and Mac Rescue (www.macresq).com as well as any Newton newsgroup for Newton keyboards. Get Newton keyboard drivers at http://cecon.cjb.net.

Casio E-100/105 Palm-size PC external keyboard – Casio will soon make an external keyboard available for its color-screen Palm-size PCs. The keyboard will be a version of Landware's GoType keyboard, modified to work with the E-100/105. When it's available, you should be able to get it through Casio dealers or from the Accessories page of Casio's Mobile info devices Web site at www.casio.com/accessories/index.cfm

KeyMate Standard & Deluxe – Check out the new KeyMate Standard and KeyMate Deluxe. These are not keyboards, but simple devices designed to interface a standard PS/2 keyboard with a Windows CE P/PC or H/PC via IrDA or Serial connection. The KeyMate Standard is an IrDA-only interface. The Deluxe has both an IrDA and Serial connection. This solution has the advantage of letting you use the keyboard of your choice, from a full-size desktop to the portable MiniKey. You can get it at http://www.microfoundry.com/. My wife uses it and rates it as a "Best Buy." ■

New HP680 Jornada Color Palmtop PC — Probably the best Palmtop in the market With HP's famous quality!

FULFILL ALL YOUR MOBILE PC NEEDS

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Connecting Your PC Companion to an ISP

BY STEVE SEROSHEK

During the last few years, people have come to depend on the Internet to provide them with on-the-spot information in the office, home, and even on the road. With faster modems and smaller computers like the Handheld PC or Palm-size PC powered by Microsoft® Windows® CE, connecting to the Internet is getting easier and easier.

One key component to connecting to the Internet is the Internet Service Provider (ISP). ISPs provide an inexpensive way to connect to the Internet to browse the World Wide Web so that you can retrieve information, access e-mail, and use other services. I have found that some ISPs work well with Windows CE-based PC Companions and some do not. The list accompanying this column represents my personal experience with these ISPs.

For browsing the Web, Pocket Internet Explorer on the Handheld PC is the tool of choice. The Palm-size PC (P/PC) does not ship with a browsing tool. However, there are several third-party solutions for this functionality of the P/PC.

Sending and receiving e-mail is very effective from a Windows CE based device. On the Handheld PC and Palm-size PC, you can send and receive e-mail with POP3 and SMTP. POP3 and SMTP are most common with ISPs. POP3 is defined as Post Office Protocol version 3. The POP3 server manages the receipt of e-mail from other users. The SMTP, Simple Mail Transfer Protocol, handles e-mail sent from your ISP to the addressed recipients. In addition, the Handheld PC Pro contains support for IMAP4, which stands for version 4 of Internet Message Access Protocol.

Configuring and connecting your PC Companion

The procedures for configuring and connecting your PC Companion are described in your PC Companion User's Guide. A screen-by-screen description of these procedures is found in the online version of this article, available at www.hpcmag.com. Go to this section in the article and click on one of the three following links:

- Configuring your device for ISP Connectivity
- Configuring Your Device for Email
- Connecting to your ISP for Web Browsing

Tips for troubleshooting

If you can connect to your Internet Service Provider (ISP) but find that you are unable to browse the Web, change the DNS server to a different DNS (Domain Name Server). The DNS server translates a Web site address (the http://www. information we know as a Web site address) to an IP address, which is the Internet network's unique address for each site. Any DNS server can be used. To find an alternate DNS server, search the Internet (http://search.msn.com) using the words "DNS Servers."

If you experience problems when you attempt to connect to your ISP, try changing the selections for IP header compression and software compression. A few ISPs require a variation of these settings to be either on or off. Almost all ISPs use a PPP connection; only a very few use a SLIP connection.

Some ISPs require you to use a terminal window, either prior to dialing or after dialing. However, most connections can be made without using a terminal window. If a terminal window is required, the ISP will provide special instructions about connecting.

The modem speed setting is very important for a fast connection. If you have a 56 Kbps or 33.6 Kbps modem, you should set the speed to 57.6 Kbps or 38.4 Kbps, respectively. To get the most out of your modem when your setting is not listed, set the modem speed on the Windows CE device to one setting greater than the actual speed of the modem. Through the wonders of data compression, your modem can most likely handle the extra throughput.

If you have problems receiving or sending e-mail, verify that your mail account name is listed correctly. In some cases, the e-mail account name is different from the logon user name. In these cases a different name must be specified in the mail settings on the Handheld PC or Palm-size PC.

Connecting to a corporate server is very similar to connecting to an ISP. The only thing that is different is the Domain field will need to be filled in. The Domain field is located in two places. It is located in the connection settings used for logon, and in the settings for your Inbox service. With the Domain field filled in you should be able to obtain authentication from your corporate servers for logon and for e-mail.

Remember, most ISPs support some level of connectivity with a Windows CE based device. However, if you are traveling you may want to select an ISP that provides you with both Web browsing and e-mail functionality. Also, make sure that the ISP provides you with several local access phone numbers, or perhaps an 800 access number, so that no matter where you are or where you travel you can always connect to the Internet with your Windows CE-powered Handheld PC or Palm-size PC. ■

Steve Seroshek is a Microsoft support professional for Windows CE-based devices. More information from Steve can be obtained from www.microsoft.com/windowsce.

Selected ISP Settings for the Handheld PC and Palm-size PC

NOTE: The information in this report is subject to change without notice. For the most accurate and up-to-date information on connecting to a specific ISP with a Windows CE based device, contact the ISP directly.

ISP: Advanced Systems Network

Web site:	http://www.as.net
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	205.167.153.4
Secondary DNS:	205.167.153.2
POP3 Server:	pop3.as.net
SMTP Server:	smtp.as.net

ISP: Alternate Access

Web site:	http://www.aa.net
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	Yes
Primary DNS:	Server
Secondary DNS:	Server
POP3 Server:	mail.aa.net
SMTP Server:	mail.aa.net

ISP: America Online

Web site:	http://www.aol.com

Not supported on Windows CE

ISP: AT&T Worldnet

Web site:	http://www.att.com/worldnet
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	204.127.160.2
Secondary DNS:	204.127.129.2
POP3 Server:	postoffice.worldnet.att.net
SMTP Server:	mailhost.worldnet.att.net

Notes: Logon name and password is different from pop3 user name and password.

ISP: Best Internet Communications

Web site:	http://www.best.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	No
Use IP header Compression:	No
Server-assigned addresses:	No
Primary DNS:	204.156.128.1
Secondary DNS:	204.156.128.10
POP3 Server:	mail.best.com
SMTP Server:	smtp.best.com

ISP: Compuserve

Web site:	http://www.compuserve.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	149.174.211.5
Secondary DNS:	149.174.213.5
POP3 Server:	pop.site1.csi.com
SMTP Server:	smtp.site1.csi.com
Notes:	See http://www.craigtech.co.uk/hpc/cservefaq.html

ISP: Drizzle

Web site:	http://www.drizzle.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	Yes
Primary DNS:	
Secondary DNS:	
POP3 Server:	mail.drizzle.com
SMTP Server:	mail.drizzle.com
Notes:	Logon using <username>-ppp

ISP: Earthlink

Web site:	http://www.earthlink.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	207.217.126.81
Secondary DNS:	207.217.77.82
POP3 Server:	mail.earthlink.net
SMTP Server:	mail.earthlink.net

Notes: Requires ELN/ before the logon user name. Also for more information go to http://help.earthlink.net/techsupport/other/winc e/menu.html

ISP: Erols

Web site:	http://www.erols.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	205.252.116.10
Secondary DNS:	205.252.116.19
POP3 Server:	pop.erols.com
SMTP Server:	smtp.erols.com

Notes: Add 4-6 commas after dial sting if not using K56Flex

ISP: GTE

Web site:	http://www.gte.net
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	206.124.64.253
Secondary DNS:	206.124.65.253
POP3 Server:	mail.gte.net
SMTP Server:	smtp.gte.net

Notes: Requires GTE/ before user name.

ISP: IBM

Web site:	http://www.ibm.net
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	No
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	165.87.194.244
Secondary DNS:	165.87.201.244
POP3 Server:	pop1-5.ibm.net
SMTP Server:	smtp1-2.ibm.net
Notes:	See http://www.cahelpdesk.advantis.com/helplib/wi nce.html

ISP: JUNO

Web site:	http://www.juno.com

Not supported on Windows CE

ISP: MCI Internet

Web site:	http://www.wcom.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	No
Use IP header Compression:	No
Server-assigned addresses:	Yes
Primary DNS:	204.70.127.127
Secondary DNS:	204.70.127.128
POP3 Server:	mail.internetmci.com
SMTP Server:	mail.internetmci.com

ISP: Mindspring

Web site:	http://www.mindspring.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	No
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	207.69.188.185
Secondary DNS:	207.69.188.186
POP3 Server:	pop.mindspring.com
SMTP Server:	mail.mindspring.com

ISP: MSN

Web site:	http://www.msn.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	Yes
Primary DNS:	
Secondary DNS:	
POP3 Server:	E-mail not supported
SMTP Server:	E-mail not supported

Notes: Requires MSN/ before user name. Great for browsing the web. E-mail not supported for Windows CE at this time, however Hotmail can be used.

ISP: Netcom

Web site:	http://www.netcom.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	No
Use IP header Compression:	No
Server-assigned addresses:	No
Primary DNS:	199.182.120.203
Secondary DNS:	199.182.120.202
POP3 Server:	popd.ix.netcom.com
SMTP Server:	smtp.ix.netcom.com

Notes: Requires # or us,ppp before the logon username.

ISP: Prodigy

Web site:	http://www.prodigy.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	198.83.19.241
Secondary DNS:	198.83.19.244
POP3 Server:	pop.prodigy.net
SMTP Server:	smtp.prodigy.net

ISP: Quik Internet

Web site:	http://www.quik.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	204.182.160.1
Secondary DNS:	205.162.86.17
POP3 Server:	mail.quik.com
SMTP Server:	mail.quik.com

ISP: Southwestern Bell

Web site:	http://www.swbell.net
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	No
Use IP header Compression:	No
Server-assigned addresses:	Yes
Primary DNS:	151.164.1.8
Secondary DNS:	151.164.1.7
POP3 Server:	postoffice.swbell.net
SMTP Server:	mail.swbell.net

ISP: Sprintnet

Web site:	http://www.sprint.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	Yes
Use IP header Compression:	Yes
Server-assigned addresses:	No
Primary DNS:	206.134.133.10
Secondary DNS:	205.137.196.138
POP3 Server:	pop.a001.sprintmail.com
SMTP Server:	smtp.a001.sprintmail.com

ISP: Sprynet

Web site:	http://www.sprynet.com
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	No
Use IP header Compression:	Yes
Server-assigned addresses:	Yes
Primary DNS:	207.69.188.185
Secondary DNS:	207.69.188.186
POP3 Server:	pop.sprynet.com
SMTP Server:	mail.sprynet.com

ISP: Sympatico- British Columbia

Web site:	http://www.bc.sympatico.ca
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	No
Use IP header Compression:	No
Server-assigned addresses:	Yes
Primary DNS:	204.174.64.1
Secondary DNS:	204.174.64.2
POP3 Server:	pop.bc.sympatico.ca
SMTP Server:	smtp.bc.sympatico.ca

ISP: UUNet

Web site:	http://www.uu.net
Server Assigned IP Address:	Yes
Use Slip:	No
Use Software Compression:	No
Use IP header Compression:	No
Server-assigned addresses:	Yes
Primary DNS:	198.6.1.1
Secondary DNS:	198.6.1.2
POP3 Server:	vpop1-alterdial.uu.net
SMTP Server:	vsmtp1-alterdial.uu.net

Notes: Alternatives for POP3 and SMTP are: vpop2-alterdial.uu.net and vsmtp0-alterdial.uu.net

Andrew M. Seybold

When the Horizon Turns to Vertical

One of the signs that a product or group of products is beginning to catch on is when small start-ups begin using the generic platform products for vertical market applications.

Today, a number of companies are turning to Windows CE devices and are adding their own software to make application-specific devices for vertical markets. Sometimes the applications are loaded into existing memory space on the device. In other cases, they are written to be loaded onto a Compact Flash card. Either way, the fact that there are a growing number of companies making use of the Windows CE platform is good news for both the operating system and its hardware vendors.

Starting a company to solve a specific problem

Parkstone Medical Information Systems, Inc., a small venture-funded firm in Florida, is representative of a growing number of companies created by end users who see a problem that needs to be solved, and go for it.

Parkstone Medical Information Systems was founded by a doctor who was frustrated with all of the paper shuffling that goes on in the medical profession, and cuts deeply into the time a doctor spends doing his or her important job. To add to the problem, when the doctor is called from home to see a patient in an emergency room situation, there is no way to access the patient's records before heading for the ER. Nor can doctors access the patient's records for use during a telephone consultation after hours.

Parkstone Medical set out to solve this problem. The solution required a device that is small enough that a doctor won't mind carrying it, yet large enough that information can be read in adverse conditions. The device had to be able to connect with existing medical computer systems, and it had to be able to quickly and easily record voice notes and/or handwritten notes.

Parkstone Medical chose the Windows CE Palm-size PC platform because it was the only handheld platform that supported color screens, handwriting capture, and voice recording in a single device. While the color Palm-size PCs are larger than some other palm-size devices, the color screen and backlighting was deemed to be mandatory for this application.

Once the company decided on the platform, it set out to design its software application. Because one of the founders was a practicing physician, the requirements could be well defined and tweaked as the application was taking shape. Parkstone Medical folks decided that in order to get these devices into the hands of as many doctors as possible, they had to keep the price down. To this end, they bundled a pharmaceutical company's prescription database with the application. The pharmaceutical company subsidizes a significant portion of the customers' cost in return for having its database resident in the device. When the doctor needs to prescribe drugs, theirs will be the first that come to mind (or to the top of the screen). The application is complete, field-testing is underway, and product rollout is not far behind.

The number of start-up companies such as Parkstone Medical is growing rapidly. These companies usually start with someone who understands an industry and who buys a device for personal use. After learning to use the standard features and functions of the device, they begin to look at ways that the device can help in the specifics of their job. It doesn't take long for these early adopters to grasp the concept of turning the horizontal product into a vertical market tool.

Once the idea has been formed, the

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process of forming a company, finding the right folks to turn the idea into reality, and finding funding for the endeavor begins. Parkstone Medical is an example of what can be done when an expert in a specific field begins thinking about a handheld computer in terms of his or her professional needs. Handheld PCs are about making things easier and providing business solutions.

Turning the process around

Another way to approach this type of project is to turn the process around. Instead of waiting for someone to come to the realization that there is an opportunity to help his or her industry become better automated (as well as to make some money), wouldn't it make sense for our industry to seek these folks out and plant the seed? The most successful vertical market software addresses the issues and solves problems for companies within a specific industry.

Vertical applications bring together the folks with the vision and the top-notch programmers. Programmers are smart folks, but unless there is input from an industry, the software they write will not hit the target. The industry "experts" must also leave their ego at the door. They may be expert in their field, but programmers are the experts when it comes to coding applications. Oftentimes the programmers can see a way to make something better or to streamline a process. The "experts" must be willing to stand back and objectively evaluate the overall results. Likewise, programmers need to understand that as the code is developed, changes will be needed. The only way to really get it "right" is to be able to listen carefully, code, listen carefully, re-code, listen some more, and re-code.

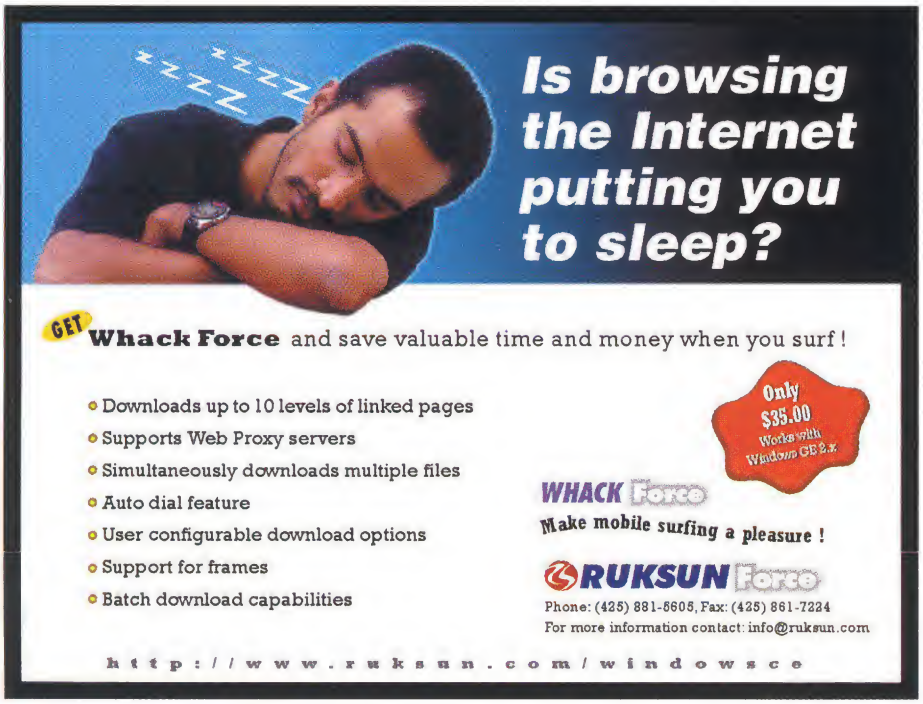
Attracting money

A start-up company focusing on a vertical market may be able to turn a profit initially, but the real question is can the company sustain performance in the long run? If it chooses a vertical market that is small in size, it will be more difficult to attract initial investors and make money with a product. It is better to choose an initial market with the intent of expanding into other related markets.

Using Parkstone Medical as my example again, the general physician's market is a large one, but there will be competition from other companies with similar products. Perhaps in addition to this general market, Parkstone Medical can craft versions of its application that are specific to surgeons, OB-GYNs, or even veterinarians. Why shouldn't vets benefit from streamlined information handling and access? Vets are doctors, they have many patients, and they need access to patient records. They deal with emergencies, and they prescribe drugs.

Entrepreneurs tend to work in a vertical market they are familiar with. But this does not mean that their concept cannot be applied to other markets as well. Of course, they must obtain sufficient input from an expert in that segment of the marketplace.

Will you ever become a Microsoft by writing software for vertical markets? Probably not, but you can make money for yourself and your investors. If your products are really good, a major vendor of supplies for that marketplace might decide to make an offer to acquire your company that will put a smile on all of your faces! ■



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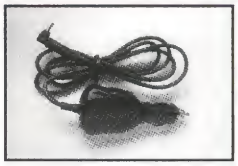

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Handheld PC Magazine's Best Windows CE Web Sites of the Last 1000 YEARS!

Even though the Third Millennium really doesn't start until 12:01 a.m., January 1, 2001, everyone seems to think it began January 1, 2000. So I thought I'd jump on the bandwagon and release my "Best of the Second Millennium" list for Windows CE Web sites.

In the later part of the Second Millennium, Windows CE was introduced, struggled for acceptance, went through a number of revisions and upgrades, and lost some of the original manufacturers and gained some new ones. PC Companions have gotten bigger (some of the H/PC Pros) and smaller (Palm-size PCs). Microsoft released ActiveSync 3.0, which makes the task of synchronizing your PC Companion and PC much easier. Web Companions and other Windows CE information appliances were being shown at COMDEX. You can even see the new HP Jornada Palm-size PC in *The World is Not Enough*, the new James Bond movie.

The later part of the Second Millennium has also given us a number of excellent Web sites devoted to Windows CE and its users. This column lists my favorites – and after looking at them you may want to just plop them into your browser's Favorites list. These are comprehensive sites, giving you FAQs, how-tos, downloads, tips and news about Windows CE.

www.microsoft.com/windowsce

Microsoft's Windows CE site is where to go for the official word on anything related to Windows CE. Microsoft is revamping their Web site to add more support for the end user. The new site wasn't up when I wrote this, so I can't tell anything more right now. My next column will probably be a review of the new site.

www.hpcmag.com

Handheld PC Magazine Online is our site. We are the first and only magazine devoted entirely to users of Windows CE handheld devices, and we have a wealth of information on our site. We have the largest listing of products for Windows CE on the Web, all of the articles that we have published, bunches of tips from Jim Christian and links to other Windows CE Web sites.

www.cewindows.net

Chris De Herrera's Windows CE Website is another great Web resource. Chris is very knowledgeable about Windows CE and very prolific, writing articles not only for his own Web site but for *Handheld PC Magazine* and other mobile computing publications. Chris is also a Microsoft Uplink Topic Editor for communications issues on Microsoft's Windows CE Web site. I refer to this site often when I am trying to do something I haven't done before, because chances are that Chris has an FAQ or how-to about it on cewindows.net. Chris' site has comprehensive comparison charts, reviews and commentary, and one of the best Windows CE links page I've seen.

www.palmpc.org.uk

Craig Peacock's Windows CE Pages is another great site. Craig has been a contributing author to *Handheld PC Magazine* since the first issue and just published *Windows CE Made Simple*, a book for beginning and intermediate users of Windows CE PC Companions. Craig's site has reviews, how-tos, links, news and general interest articles. The Web address takes you to his Palm-size PC site. From there you can link to his Handheld PC site.

www.cestation.com

CE Station is a relative newcomer to the Windows CE marketplace, but comes with a good pedigree. CE Station is part of the GoPDA.com network, one of the largest sites for other PDAs. They have tons of downloads and software and hardware for Windows CE that you can buy online.

pda.tucows.com/wince

TUCOWS PDA is the site formerly know as "CE Monster." But a rose by any other name is still a rose. I'm not too sure that I like the new color scheme, but this is still one of the best places to download freeware, shareware, or demoware.

www.wincecity.com

CEcity is one the most up-to-date and comprehensive Windows CE sites on the Internet. Here you'll find software and hardware listings and reviews, message boards, support documents, hardware specifications, a shopping section, a travel page, and developer information.

www.pdapage.com

Looking for a new PC Companion? The PDA Page is a great place to find the best price.

These are the sites I use all the time when I'm researching products or trying to find the solution to a problem. They are my "first look" Web resources for Windows CE. Again, as the real Third Millennium doesn't begin for another year, I guess this list is a bit premature. I'll update the list in one year, but I imagine that these sites will remain in the top positions — they are a safe bet when you need information about Windows CE.

Until next issue, I'll see you Online. ■

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Hal Goldstein

Windows ~~CE~~ Powered Handheld and Palm-size PCs

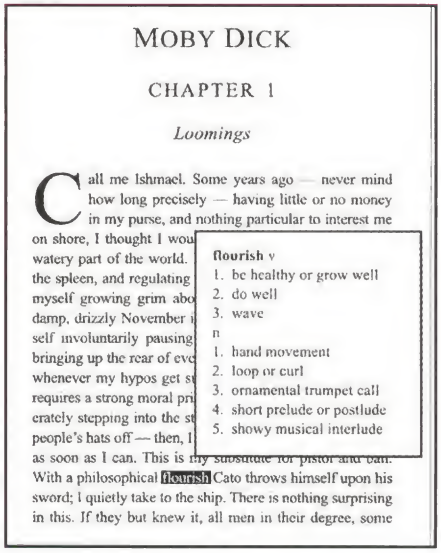
"Has anyone here heard any good lawyer jokes lately?" asked Bill Gates as he opened his COMDEX keynote address. No, but we're often asked whether the Windows CE market will be effected by the U.S. Department of Justice case against Microsoft. The short answer: it's unlikely.

However, Microsoft hopes that its own internal restructuring and marketing initiatives will have a positive effect in the handheld and palm-size PC market. Microsoft recently merged its Consumer Windows Division and Business and Enterprise Division into simply, the Windows Division. Along the same lines, Microsoft is re-branding its Windows CE product line. Microsoft believes that multiple Windows operating system names such as 98, NT, CE, embedded NT confuses the average consumer. Consequently, as new versions of Windows CE and smart card technology are introduced, we will see a new "Windows Powered" label on Windows Powered Palm-size PC and Windows Powered Handheld PC devices.

You and I and other "insiders" can still refer to the operating system of these handhelds and palm-size devices as Windows CE. To industry and developer audiences, Microsoft will continue to refer to the various iterations of this operating system and related development tools as Windows CE.

What Windows CE Device Manufacturers Say

At COMDEX I met with Compaq, HP, Casio, Sharp, and NEC. Essentially what they said was similar. Yes, they wished Microsoft would spend more in marketing and educating the public about the virtues of Windows CE. At the same time each seems to have carved out its own niche and is reasonably pleased with its sales. The HP Jornada 680, the Sharp Mobilon 4600, and the NEC 770 are small form factor devices with keyboard and touchscreen. These small computers have proven popular, especially among corporate clients.



MOBY DICK

CHAPTER 1

Loomings

Call me Ishmael. Some years ago — never mind how long precisely — having little or no money in my purse, and nothing particular to interest me on shore, I thought I wou
watery part of the world.
the spleen, and regulating
myself growing grim abo
damp, drizzly November i
self involuntarily pausing
bringing up the rear of eve
whenever my hypos get s
requires a strong moral pri
erately stepping into the s
people's hats off — then, I
as soon as I can. This is my substitute for pistol and ball.
With a philosophical flourish Cato throws himself upon his sword; I quietly take to the ship. There is nothing surprising in this. If they but knew it, all men in their degree, some

flourish v
1. be healthy or grow well
2. do well
3. wave

n
1. hand movement
2. loop or curl
3. ornamental trumpet call
4. short prelude or postlude
5. showy musical interlude

Uncluttered ClearType text using a Microsoft Reader on an LCD screen

Gates in his keynote spoke about the Compaq and Casio Palm-size PCs:

"The miniaturization continues to amaze me. One of the ones that I'm very excited about is this Aero 1500. It's a palm-sized PC. You probably can't get a sense of how thin this is, but people said we couldn't get Windows CE devices to be this thin. We've also got the Casio (E-105) here, which was the first palm-sized PC to have digital music and digital video capabilities built in. It's sort of a digital media device. This version here has the digital camera, the CompactFlash camera actually built into it. So, lots of neat new things going on with Windows CE."

Gates went on to describe how you will use your Windows CE device in the future:

"...you have a little PDA device and you're walking around your home. You'll be able to select what songs you're interested in. It will be sent across the network to the speakers that are there. You could use your device to show some digital video or photos on, say, the little screen that you've got on your refrigerator. We're also very enthused about digital books."

Reading Books on your PC Companion

I love books. While intrigued by the potential of digital books (eBooks), I wonder if they will really catch on as quickly as digital music and photos. Next year Windows CE users should be among the first to test the new technology and find out.

Microsoft believes that jagged type, varied margins, and blurry displays are the main reasons for the current lack of success of eBooks. Microsoft hopes to change that with Microsoft Reader and ClearType.

Microsoft used the book, which has evolved over centuries, as the "blueprint" for Microsoft Reader, their electronic book viewer. Built into MS Reader is Microsoft's ClearType technology, designed to dramatically improve the clarity of text viewed on an LCD screen. A typographically well-designed book frees the mind to focus not on letters and words, but on the story and meaning. Microsoft believes that MS Reader, with its ability to display clean, crisp and easy-to-read text, will give eBooks a big boost.

Although nothing official has been announced, we can probably expect to see Microsoft Reader and ClearType technology as part of the next version of Windows CE. ■

Hal Goldstein (hal@thaddeus.com) is Executive Editor and Publisher of *Handheld PC Magazine* and president of Thaddeus Computing (www.thaddeus.com). He lives in Fairfield, Iowa with his wife and two sons. He currently is rehearsing his role as Nahum the Beggar, in a local production of *Fiddler on The Roof*. He volunteers as technical consultant to the Natural Law Party (www.natural-law.org), an independent political party.

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